BELLINI

(Machine Code: A294)

SERVICE MANUAL

Subject to change
Ricoh Technical Service
October 22th, 1999

⚠IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the copier and peripherals, make sure that the copier power cord is unplugged.
2. The wall outlet should be near the copier and easily accessible.
3. Note that some components of the copier and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. If the Start key is pressed before the copier completes the warm-up period (the Start key starts blinking red and green alternatively), keep hands away from the mechanical and the electrical components as the copier starts making copies as soon as the warm-up period is completed.
6. The inside and the metal parts of the fusing unit become extremely hot while the copier is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

1. Never operate the copier without the ozone filters installed.
2. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The copier and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.
2. The NVRAM on the SICU has a lithium battery which can explode if replaced incorrectly. Replace the NVRAM only with an identical one. The manufacturer recommends replacing the entire NVRAM. Do not recharge or burn this battery. Used NVRAM must be handled in accordance with local regulations.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

LASER SAFETY

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

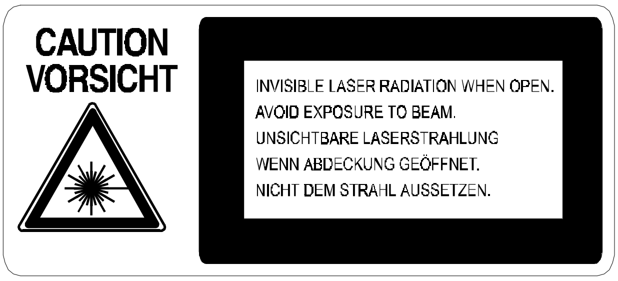
⚠WARNING

Use of controls, or adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

⚠WARNING

WARNING: Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.

CAUTION MARKING:


CAUTION
VORSICHT
INVISIBLE LASER RADIATION WHEN OPEN.
AVOID EXPOSURE TO BEAM.
UNSICHTBARE LASERSTRAHLUNG
WENN ABDECKUNG GEÖFFNET.
NICHT DEM STRAHL AUSSETZEN.

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OPTION

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1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

1.1.1 COPIER ENGINE

Configuration:	Console
Copy Process:	Dry electrostatic transfer system
Originals:	Sheet/Book
Original Size:	Maximum: A3/11" x 17" Minimum: A5, 5 1/2"x 8 1/2" (using ADF)
Original Alignment:	Rear left corner
Paper Size/Weight:	
Size:	Mainframe, Tray 1 (Tandem Tray): A4 sideways and LT sideways Mainframe, Trays 2 and 3 (Universal Trays): Europe/Asia: A5 sideways - A3 lengthwise, 8-kai sideways, 16-kai N. America: 5 1/2" x 8 1/2" sideways - 11" x 17" lengthwise LCT, Trays 4 ~ 6: A4 sideways, B5 sideways, LT sideways, A5, HLT Duplex Tray: A5/HLT (lengthwise or sideways) to A3/DLT, except that tab paper cannot be used
Weight:	Mainframe, Trays 1 to 3: 52 to 163 g/m^2 16 to 40 lbs Bond 50 to 60 lbs Cover 90 lbs Index (no Tab) LCT, Trays 4 and 5: 52 to 216 g/m^2 16 to 40 lbs Bond 50 to 80 lbs Cover 90 to 110 lbs Index LCT, Tray 6: Same as Mainframe, Trays 1 to 3 Duplex Tray: 64 to 163 g/m^2 20 to 40 lbs Bond 50 to 60 lbs Cover 90 lbs Index (no Tab)

Reproduction Ratios: 7 reduction and 5 enlargement

	Metric Version	Inch Version
Enlargement	400% 200% 141% 122% 115%	400% 200% 155% 129% 121%
Full Size	100%	100%
Reduction	93% 82% 75% 71% 65% 50% 25%	93% 85% 78% 73% 65% 50% 25%

Zoom:	25 ~ 400%
Copy Speed:	Max. 85 cpm (A4/8 1/2" x 11" sideways)
Resolution:	Scanning: 600 dpi Printing: 600 dpi
Gradation:	256 levels
Warm-up Time:	Less than 360 s (from Off mode)
First Copy Time: (1st Tray, A4 sideways)	Less than 5.4 s (Finisher upper tray: face down) Less than 4.1 s (Finisher upper tray: face up) Less than 4.5 s (Copier: face down) Less than 3.2 s (Copier: face up)
Copy Number Input:	Ten-key pad, 1 to 9999
Copy Paper Capacity:	1st Tray: 1,000 sheets (2,000 when used as a tandem tray) 2nd/3rd Tray: 500 sheets each 4th/5th Tray (LCT): 1,000 sheets each 6th Tray (LCT): 2,500 sheets
Memory Capacity:	RAM: 48 MB x 2 HDD: 4.3 GB x 2
Toner Replenishment:	Cartridge exchange (1,450 g/cartridge)
Toner Yield:	55 k copies (A4 sideways, 6% full black, 1 to 25 copying)
Power Source:	North America: 240 V, 60 Hz, 20 A Europe/Asia: 220 ~ 240 V, 50Hz/60 Hz, 16 A

Power Consumption:

N. America Version (Unit: Wh)

		NA (240 V/60 Hz)			
		Copier Only		**System**	
		Single Side Copy	**Duplex Copy**	**Single Side Copy**	**Duplex Copy**
Warm-up	ON	1,864		1,888	
Copying	OFF	444	462	470	502
	ON	2,122	2,135	2,152	2,182
Stand-by	OFF	190		203	
	ON	753		766	
Energy Star (15 min)	OFF	169		183	
	ON	733		746	
Low Power Mode		293.2			
OFF Mode		11			

Europe Version (Unit: Wh)

		EU (230 V/50 Hz)			
		Copier Only		**System**	
		Single Side Copy	**Duplex Copy**	**Single Side Copy**	**Duplex Copy**
Warm-up	ON	1,800		1,810	
Copying	OFF	453	472	467	510
	ON	2,014	2,036	2,032	2,074
Stand-by	OFF	190		203	
	ON	718		733	
Energy Star (15 min)	OFF	169		182	
	ON	698		712	
Low Power Mode		299.0			
OFF Mode		11			

NOTE: ON: Fusing Lamp On, OFF: Fusing Lamp Off

Noise Emission:

Sound Power Level:

The measurements were made in accordance with ISO 7779.

	Copier only	**Full system**
Stand-by	Less than 59 dB(A)	Less than 58 dB(A)
Copying (ADF 1 to 1)	Less than 72 dB(A)	Less than 78 dB(A)
Copying	Less than 71 dB(A)	Less than 77 dB(A)

Sound Pressure Level:

The measurements were made in accordance with ISO 7779.

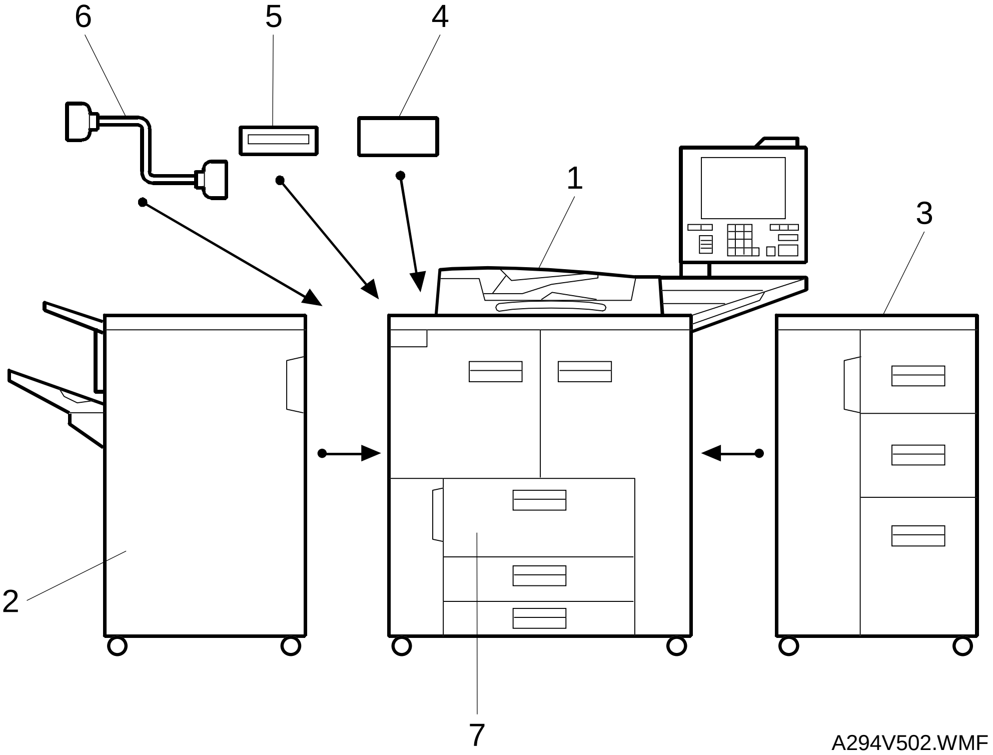
	Copier only	**Full system**
Stand-by	Less than 44 dB(A)	Less than 45 dB(A)
Copying (ADF 1 to 1)	Less than 67 dB(A)	Less than 68 dB(A)
Copying (From Memory)	Less than 59 dB(A)	N/A

Dimensions: (W x D x H)	870 x 735 x 1,476 mm (34.3" x 28.9" x 58.1") (without options)
Weight:	252 kg (without options)
Optional Equipment:	Refer to Machine Configuration

1.1.2 ADF

Original Size:	Normal Original Mode: A3 to B6, DLT to HLT Thin Original Mode: A3 to B6 sideways, DLT to HLT Duplex Original Mode: A3 to A5, DLT to HLT
Original Weight:	Normal Original Mode: 52 ~ 156 g/m^2, 14 ~ 42 lb Thin Original Mode: 40 ~ 156 g/m^2, 11 ~ 42 lb Duplex Original Mode: 52 ~ 128 g/m^2, 14 ~ 34 lb
Table Capacity:	100 sheets (80 g/m^2, 20 lb)
Original Feeding Speed:	72 cpm (A4/LT sideways, 1 to 1)
Original Standard Position:	Rear left corner
Separation:	FRR
Original Transport:	One flat belt
Original Feed Order:	From the top original
Power Source:	DC 24 V and DC 38 V from the copier
Power Consumption:	145 W
Dimensions (W x D x H):	680 x 560 x 150 mm

1.2 MACHINE CONFIGURATION



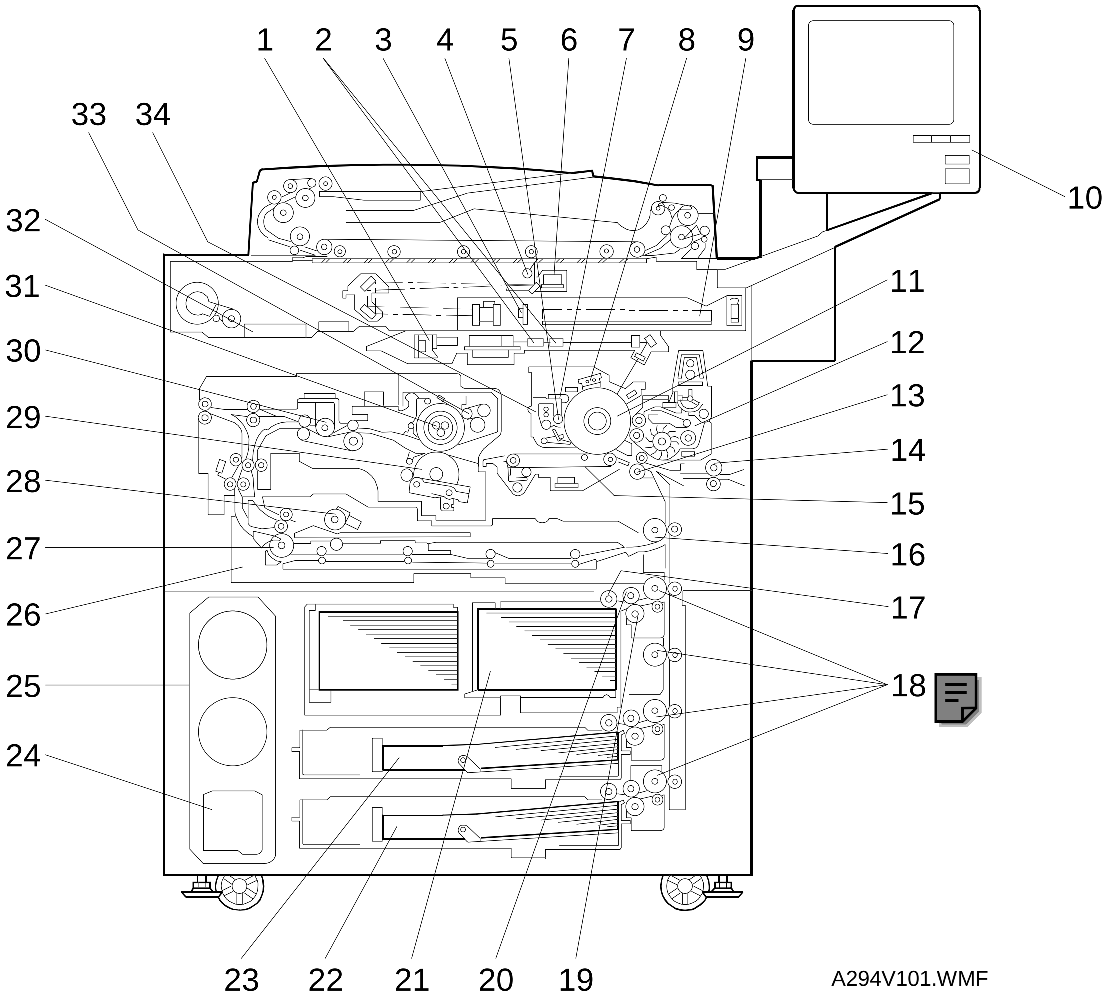
A294V502.WMF

Item	Machine Code	No.
Mainframe	A294	1
Finisher	B302	2
LCT	B303	3
Interface Kit Type 850: *	B327	4
A3/DLT Tray Kit Type 850	B331	7 Replaces the tandem LCT
CD-RW (CDROM reader/writer): *	B334	5
Punch Unit	A812-30, 31, 32, 57, 67	Inside the Finisher
Connector (for the Tandem Copy feature): *	B328	6

*: When the CD-RW and/or the copy connector cable are/is installed, the interface kit is required.

1.3 COMPONENT LAYOUT

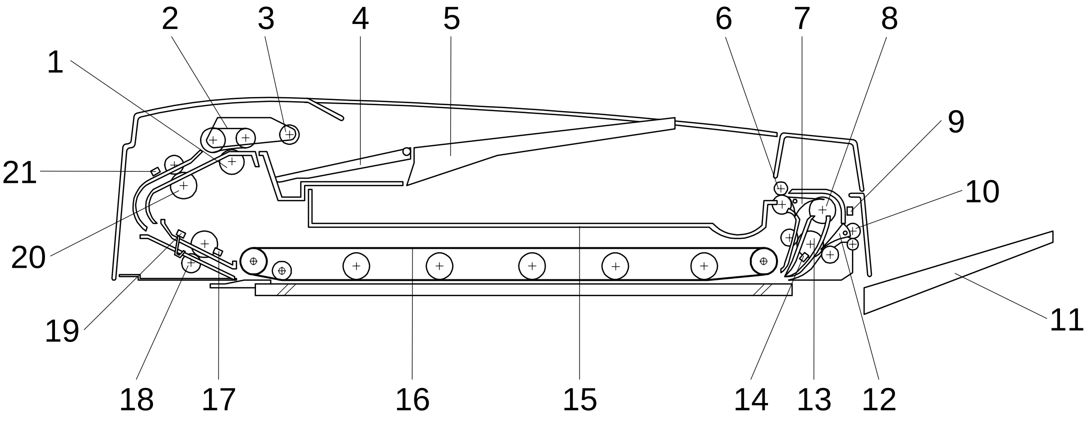
1.3.1 COPIER ENGINE



A294V101.WMF

1. Laser Diode Board
2. fθ Lenses
3. Sensor Board Unit
4. Exposure Lamp
5. Cleaning Brush
6. Lamp Regulator
7. Cleaning Blade
8. Charge Corona Unit
9. System Image Control Unit
10. Color LCD
11. Drum
12. Development Unit
13. Registration Roller
14. LCT Relay Roller
15. Transfer Belt Unit
16. Relay Roller
17. Pick-up Roller
18. Vertical Transport Rollers
19. Separation Roller
20. Feed Roller
21. 1st Tray (Tandem, 1,000 sheets each)
22. 2nd Tray (500 sheets)
23. 3rd Tray (500 sheets)
24. Used Toner Bottle
25. Toner Bank Unit
26. Duplex Tray
27. Inverter Unit Paper Exit Roller
28. Inverter Feed Roller
29. Pressure Roller
30. Paper Cooling Pipe
31. Hot Roller
32. Motor Control Unit
33. Oil Supply & Cleaning Web
34. Drum Unit

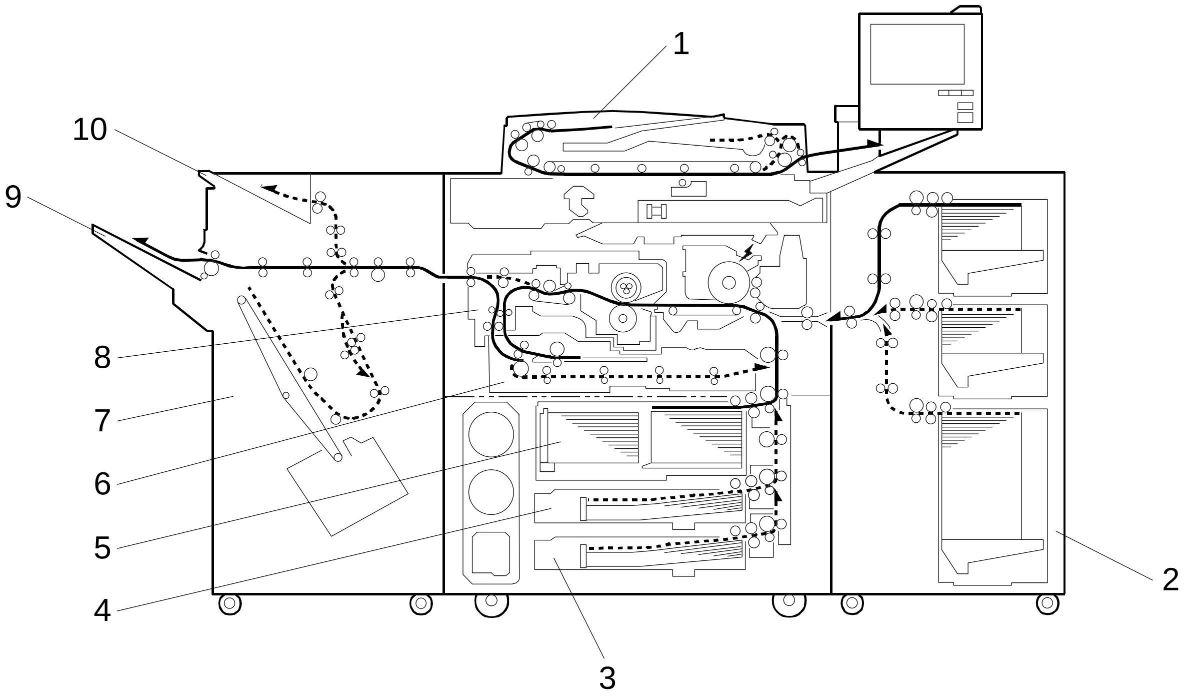
1.3.2 ADF



B301V001.WMF

1. Separation Roller	12. Exit Gate
2. Feed Belt	13. Inverter Roller
3. Pick-up Roller	14. Exit Sensor
4. Bottom Plate	15. Upper Exit Tray
5. Original Tray	16. Transport Belt
6. Upper Tray Exit Roller	17. Registration Sensor
7. Inverter Gate	18. Lower Transport Roller
8. Inverter Guide Roller	19. Width Sensor
9. Inverter Sensor	20. Upper Transport Roller
10. Right Tray Exit Roller	21. Entrance Sensor
11. Right Exit Tray	

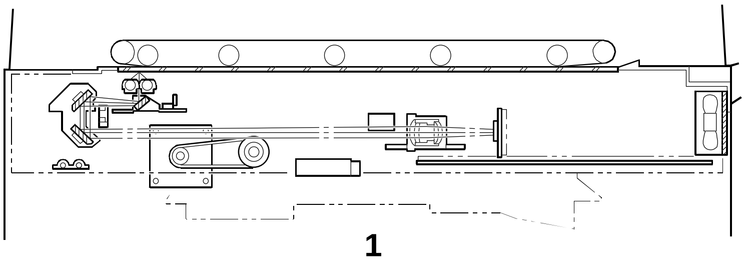
1.4 PAPER PATH



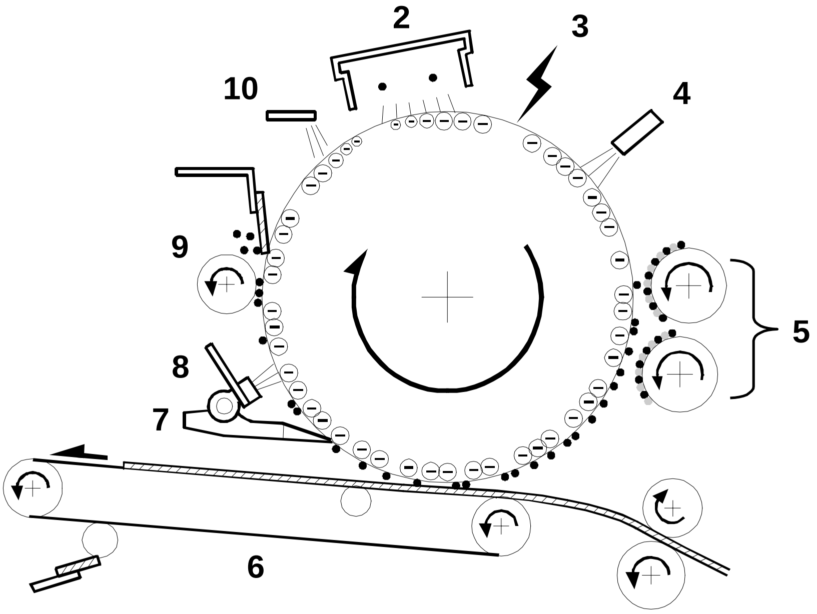
A294V504.WMF

1. ADF	6. Duplex Unit
2. Optional LCT	7. Finisher
3. Tray 3 (1,500-sheet LCT)	8. Inverter Unit
4. Tray 2 (550-sheet Tray)	9. Shift Tray
5. Tray 1 (Tandem Tray)	10. Upper Tray

1.5 COPY PROCESS



A229V508.WMF



A229V510.WMF

1. **EXPOSURE**
   A xenon lamp exposes the original. Light reflected from the original passes to the CCD, where it is converted into an analog data signal. This data is converted to a digital signal, processed, and stored in the memory. At the time of printing, the data is retrieved and sent to the laser diode. For multi-copy runs, the original is scanned once only and stored to the hard disk.

2. **DRUM CHARGE**
   An OPC (organic photoconductor) drum is used in this machine. In the dark, the charge corona unit gives a negative charge to the drum. The grid plate ensures that corona charge is applied uniformly. The charge remains on the surface of the drum because the OPC layer has a high electrical resistance in the dark.

3. LASER EXPOSURE

The processed data from the scanned original is retrieved from the hard disk and transferred to the drum by four laser beams, which form an electrostatic latent image on the drum surface. The amount of charge remaining as a latent image on the drum depends on the laser beam intensity, which is controlled by the laser diode board (LDB).

4. DRUM POTENTIAL SENSOR

The drum potential sensor detects the electric potential on the drum to correct various process control elements.

5. DEVELOPMENT

The magnetic developer brush on the development rollers comes in contact with the latent image on the drum surface. Toner particles are electrostatically attracted to the areas of the drum surface where the laser reduced the negative charge on the drum.

6. IMAGE TRANSFER

Paper is fed to the area between the drum surface and the transfer belt at the proper time to align the copy paper and the developed image on the drum. Then, the transfer bias roller and brush apply a high positive charge to the reverse side of the paper through the transfer belt. This positive charge pulls the toner particles from the drum to the paper. At the same time, the paper is electrically attracted to the transfer belt.

7. PAPER SEPARATION

Paper separates from the drum as a result of the electrical attraction between the paper and the transfer belt. The pick-off pawls also help separate the paper from the drum.

8. ID SENSOR

The laser forms a sensor pattern on the drum surface. The ID sensor measures the reflectivity of the pattern. The output signal is one of the factors used for toner supply control.

9. CLEANING

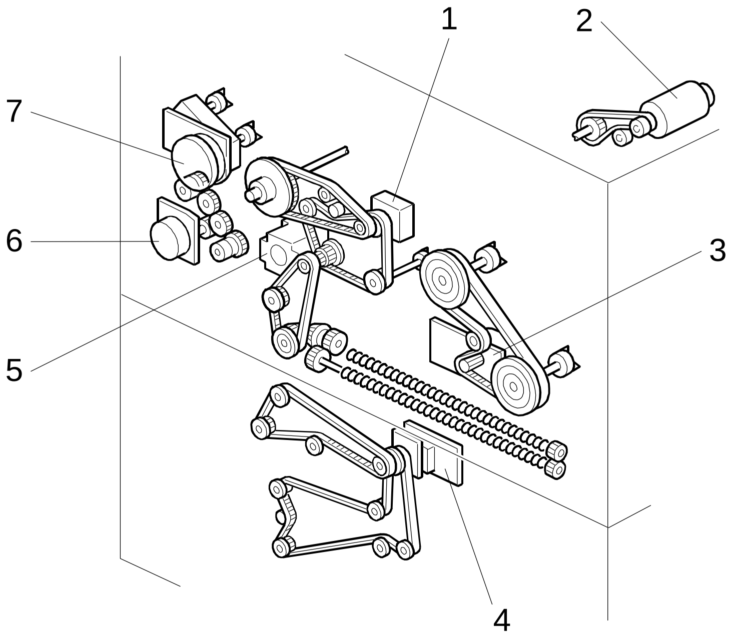
The cleaning brush removes toner remaining on the drum after image transfer and the cleaning blade scrapes off all remaining toner.

10. QUENCHING

The light from the quenching lamp electrically neutralizes the charge on the drum surface.

1.6 DRIVE LAYOUT

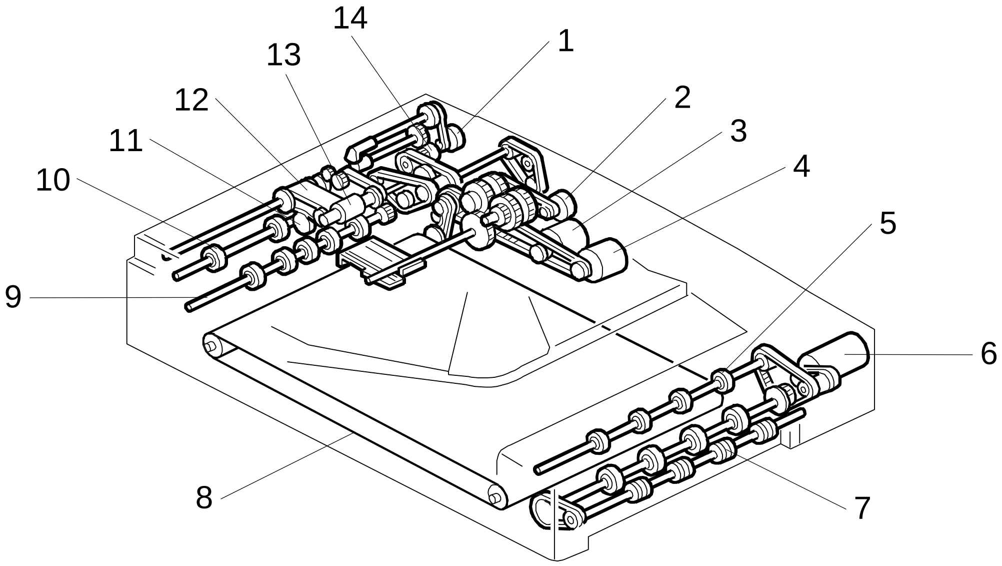
1.6.1 COPIER ENGINE



A294V501.WMF

1. Drum Motor
2. Scanner Motor
3. Fusing/Duplex Motor
4. Paper Feed Motor
5. Registration Motor
6. Relay Motor
7. Development Motor

1.6.2 ADF



B301V101.WMF

1. Pick-up Motor	8. Transport Belt
2. Bottom Plate Motor	9. Lower Transport Roller
3. Feed-in Motor	10. Upper Transport Roller
4. Transport Motor	11. Separation Roller
5. Upper Exit Roller	12. Feed Belt
6. Feed-out Motor	13. Pick-up Roller
7. Right Exit Roller	14. Feed-in Clutch

1.7 ELECTRICAL COMPONENT DESCRIPTIONS

Refer to the electrical component layout on the reverse side of the point-to-point diagram for the location of the components using the symbols and index numbers.

1.7.1 COPIER ENGINE

Symbol	Name	Function
Motors		
M1	Scanner	Drives the 1st and 2nd scanners.
M2	Polygonal Mirror	Turns the polygonal mirror.
M3	Drum	Drives the drum, cleaning unit, and transfer belt unit.
M4	Development	Drives the development unit.
M5	Toner Supply	Supplies the toner to the toner hopper.
M6	Toner Bank	Drives the toner transport coil, which feeds fresh toner from the toner bank to the toner supply cylinder.
M7	Upper Toner Bottle	Rotates the upper toner bottle to supply toner to the toner entrance tank.
M8	Upper Bottle Cap	Opens and closes the inner cap of the upper toner bottle.
M9	Lower Toner Bottle	Rotates the lower toner bottle to supply toner to the toner entrance tank.
M10	Lower Bottle Cap	Opens and closes the inner cap of the lower toner bottle.
M11	Charge Corona Wire Cleaner	Drives the charge corona wire cleaner.
M12	Fusing/Duplex	Drives the fusing unit, duplex unit, inverter unit, and paper exit rollers.
M13	Paper Feed	Drives the paper feed, separation, pick-up, lower relay, and vertical transport rollers.
M14	Relay	Drives the upper relay roller and the LCT relay roller.
M15	1st Tray Lift	Raises and lowers the bottom plate in the 1st paper tray.
M16	2nd Tray Lift	Raises and lowers the bottom plate in the 2nd paper tray.
M17	3rd Tray Lift	Raises and lowers the bottom plate in the 3rd paper tray.
M18	Registration	Drives the registration rollers.
M19	Oil Supply/Cleaning Web	Drives the oil supply/cleaning web.
M20	Rear Fence Drive	Moves the paper stack in the left tandem tray to the right tandem tray.
M21	Jogger	Drives the jogger fences to square the paper stack in the duplex unit.
M22	Optics Cooling Fan	Removes heat from the scanner optics unit.
M23	Polygonal Mirror Motor Cooling Fan	Removes heat from around the polygonal mirror motor.
M24	LDB Cooling Fan	Removes heat from around the LDB.

Symbol	Name	Function
M25	SICU Cooling Fan	Removes heat from around the SICU.
M26	Drum Cooling Fan	Removes heat from the drum.
M27	Development Unit Cooling Fan 1	Removes heat from the development unit.
M28	Development Unit Cooling Fan 2	Removes heat from the development unit.
M29	Paper Cooling Pipe Fan	Removes heat from the paper cooling pipe.
M30	Duplex Cooling Fan	Removes heat from around the duplex unit.
M31	Exhaust Fan	Removes heat from around the fusing unit.
M32	Steam Removal Fan	Removes water vapour from around the fusing unit.
M33	PSU Cooling Fan 1	Removes heat from the PSU.
M34	PSU Cooling Fan 2	Removes heat from the PSU.
Sensors		
S1	Scanner HP	Informs the CPU when the 1st and 2nd scanners are at home position.
S2	Original Width	Detects original width. This is one of the APS (Auto Paper Select) sensors.
S3	Original Length 1	Detects original length. This is one of the APS (Auto Paper Select) sensors.
S4	Original Length 2	Detects original length. This is one of the APS (Auto Paper Select) sensors.
S5	Drum Potential	Detects the drum surface potential.
S6	Toner Density (TD)	Detects the amount of toner in the developer.
S7	Image Density (ID)	Detects the density of the ID sensor pattern on the drum.
S8	Toner Hopper	Detects toner in the toner hopper.
S9	Toner Supply Motor	Monitors the toner supply motor.
S10	Upper Toner Bottle	Detects when the upper toner bottle is set.
S11	Lower Toner Bottle	Detects when the lower toner bottle is set.
S12	Upper Bottle Inner Cap	Detects when the inner cap of the upper toner bottle is opened.
S13	Lower Bottle Inner Cap	Detects when the inner cap of the lower toner bottle is opened.
S14	Toner Collection Bottle	Detects when the waste toner collection bottle is set.
S15	Toner Overflow	Detects when the waste toner collection bottle is full.
S16	Toner Near End	Detects toner near end in the toner bank unit.
S17	1st Paper Feed	Controls the 1st paper feed clutch on/off timing and the 1st pick-up solenoid off timing.
S18	2nd Paper Feed	Controls the 2nd paper feed clutch on/off timing and the 2nd pick-up solenoid off timing.
S19	3rd Paper Feed	Controls the 3rd paper feed clutch on/off timing and the 3rd pick-up solenoid off timing.
S20	1st Tray Lift	Detects when the paper in tray 1 is at the correct height for paper feed.

Symbol	Name	Function
S21	2nd Tray Lift	Detects when the paper in tray 2 is at the correct height for paper feed.
S22	3rd Tray Lift	Detects when the paper in tray 3 is at the correct height for paper feed.
S23	1st Paper End	Informs the CPU when tray 1 runs out of paper.
S24	2nd Paper End	Informs the CPU when tray 2 runs out of paper.
S25	3rd Paper End	Informs the CPU when tray 3 runs out of paper.
S26	Rear Fence HP	Informs the CPU when the tandem tray rear fence is in the home position.
S27	Rear Fence Return	Informs the CPU when the tandem tray rear fence is in the return position.
S28	Front Side Fence Open	Detects whether the tandem tray front side fence is opened.
S29	Front Side Fence Closed	Detects whether the tandem tray front side fence is closed.
S30	Rear Side Fence Open	Detects whether the tandem tray rear side fence is opened.
S31	Rear Side Fence Closed	Detects whether the tandem tray rear side fence is closed.
S32	Base Plate Down	Detects when the bottom plate is completely lowered, to stop the 1st tray lift motor.
S33	1st Tray Paper Height 1	Detects the paper height in the 1st tray.
S34	1st Tray Paper Height 2	Detects the paper height in the 1st tray.
S35	1st Tray Paper Height 3	Detects the paper height in the 1st tray.
S36	1st Tray Paper Height 4	Detects the paper height in the 1st tray.
S37	Left 1st Tray Paper	Detects whether there is paper in the left side of the 1st tray.
S38	Right 1st Tray Paper	Detects whether there is paper in the right side of the 1st tray, allowing the tray to lift if paper is present.
S39	Duplex Inverter	Detects misfeeds.
S40	Duplex Entrance	Detects the leading and trailing edges of the paper to determine the reverse roller solenoid on or off timing.
S41	Duplex Transport 1	Detects the position of paper in the duplex unit.
S42	Duplex Transport 2	Detects the position of paper in the duplex unit.
S43	Duplex Transport 3	Detects the position of paper in the duplex unit.
S44	Duplex Jogger HP	Detects if the duplex jogger fences are at the home position or not.
S45	LCT Relay	Detects misfeeds.
S46	Relay	Detects misfeeds.
S47	Registration	Detects misfeeds and controls registration clutch on/off timing.
S48	Guide Plate Position	Detects whether the registration guide plate is open or closed.

Symbol	Name	Function
S49	Oil Supply/Cleaning Web End	Detects when the oil supply/cleaning web has been used up.
S50	Fusing Exit	Detects misfeeds.
S51	Exit	Detects misfeeds.
Switches		
SW1	Main Power	Provides power to the machine. If this is off, there is no power supplied to the machine.
SW2	Right Front Door Safety 1	Cuts the +24 V dc power line for the fusing/duplex motor.
SW3	Right Front Door Safety 2	Detects if the front door is open or not, and cuts the +24 V dc power line for the IOB.
SW4	Right Front Door Safety 3	Cuts the +5 V LD dc power line.
SW5	Right Front Door Safety 4	Cuts the +5 V LD dc power line.
SW6	Left Front Door Safety 1	Cuts the +24 V dc power line for the fusing/duplex motor.
SW7	Left Front Door Safety 2	Detects if the front door is open or not, and cuts the +24 V dc power line for the IOB.
SW8	Left Front Door Safety 3	Cuts the +5 V LD dc power line.
SW9	Left Front Door Safety 4	Cuts the +5 V LD dc power line.
SW10	2nd Tray Paper Size	Determines the size of paper in tray 2. Also detects when the tray has been placed in the machine.
SW11	3rd Tray Paper Size	Determines the size of paper in tray 3. Also detects when the tray has been placed in the machine.
Solenoids		
SOL1	Transfer Belt Lift	Controls the up-down movement of the transfer belt unit.
SOL2	1st Pick-up	Controls the up-down movement of the pick-up roller in tray 1.
SOL3	2nd Pick-up	Controls the up-down movement of the pick-up roller in tray 2.
SOL4	3rd Pick-up	Controls the up-down movement of the pick-up roller in tray 3.
SOL5	1st Separation Roller	Controls the up-down movement of the separation roller in tray 1.
SOL6	2nd Separation Roller	Controls the up-down movement of the separation roller in tray 2.
SOL7	3rd Separation Roller	Controls the up-down movement of the separation roller in tray 3.
SOL8	Front Side Fence	Opens and closes the front side fence in the tandem tray.
SOL9	Rear Side Fence	Opens and closes the rear side fence in the tandem tray.

Symbol	Name	Function
SOL10	Tandem Tray Connect	Connects/disconnects the two halves of the tandem tray.
SOL11	Left 1st Tray Lock	Locks the left tandem tray while paper is being transported from left tray to right tray.
SOL12	Duplex Inverter Gate	Moves the junction gate to direct copies to the duplex tray or to the paper exit.
SOL13	Reverse Roller	Controls the up-down movement of the reverse roller in the duplex unit.
SOL14	Inverter Guide Plate	Controls the up-down movement of the inverter feed guide plate in the duplex unit.
SOL15	Guide Plate	Opens the guide plate when a paper misfeed occurs around this area.
SOL16	Inverter Gate	Moves the junction gate to direct copies to the duplex/inverter unit or to the paper exit unit.
Magnetic Clutches		
MC1	Toner Supply Coil	Transfers drive from the toner bank motor to the toner transport coil, to transport toner towards the hopper.
MC2	Toner Supply Roller	Turns the toner supply roller to supply toner from the toner hopper to the development unit.
MC3	1st Paper Feed	Starts paper feed from tray 1.
MC4	2nd Paper Feed	Starts paper feed from tray 2.
MC5	3rd Paper Feed	Starts paper feed from tray 3.
MC6	Inverter Exit Roller	Releases the drive from the inverter exit roller in the duplex unit.
MC7	Duplex Transport	Drives the duplex transport rollers to transport the paper to the duplex feed rollers.
MC8	Duplex Feed	Starts paper feed out of the duplex tray back into the machine via to the relay rollers.
MC9	1st Vertical Transport	Drives the 1st vertical transport rollers.
MC10	2nd Vertical Transport	Drives the 2nd vertical transport rollers.
MC11	3rd Vertical Transport	Drives the 3rd vertical transport rollers.
MC12	Upper Relay	Drives the upper relay rollers (between tray1 and the registration rollers)
MC13	LCT Relay	Drives the relay rollers for paper feed into the machine from the LCT.
MC14	Lower Relay	Drives the lower relay rollers (between paper trays 1 and 2).
PCBs		
PCB1	BCU (Base Engine Control Unit)	Controls all base engine functions both directly and through other control boards.
PCB2	SICU (Scanner Image Control Unit)	Controls image processing, the laser diode, and the polygonal mirror motor.

Symbol	Name	Function
PCB3	PSU (Power Supply Unit)	Provides dc power to the system and ac power to the fusing lamp and heaters.
PCB4	IOB (Input/Output Board)	Controls the paper feed components.
PCB5	SBU (Sensor Board Unit)	Contains the CCD, and outputs a video signal to the SBICU board.
PCB6	MCU (Motor Control Unit)	Drives the scanner motor.
PCB7	Lamp Regulator	Provides dc power to the exposure lamp.
PCB8	Polygonal Mirror Motor Control	Drives and controls the polygonal mirror motor.
PCB9	LDB	Controls the laser diode.
PCB10	AC Drive	Drives the ac components.
PCB11	Operation Panel	Controls the components of the operation panel.
PCB12	Operation Key	Controls the operation switch.
Lamps		
L1	Exposure Lamp	Applies high intensity light to the original for exposure.
L2	Fusing Lamp 1	Provides heat to the hot roller.
L3	Fusing Lamp 2	Provides heat to the hot roller.
L4	Fusing Lamp 3	Provides heat to the hot roller.
L5	Quenching	Neutralizes any charge remaining on the drum surface after cleaning.
Power Packs		
PP1	Charge/bias/grid	Provides high voltage for the charge corona wires, grid plate, and the development roller.
PP2	Transfer	Provides high voltage for the transfer belt.
Others		
CB1	Circuit Breaker	Provides back-up high current protection for the electrical components.
H1	Optics Anti-Condensation (option)	Turns on when the main switch is off to prevent moisture from forming on the optics.
H2	Drum (option)	Turns on when the main switch is off to prevent moisture from forming around the drum.
H3	Tray Heater 1 (option)	Turns on when the main switch is off to keep paper dry in the paper tray.
H4	Tray Heater 2 (option)	Turns on when the main switch is off to keep paper dry in the paper tray.
HDD1	HDD	Scanned image data is compressed and held here temporarily.
HDD2	HDD	Scanned image data is compressed and held here temporarily.
NF1	Noise Filter	Removes noise from the power line.

Symbol	Name	Function
SD1	Laser Synchronization Detector	Detects the laser beam at the start of the main scan.
TC1	Total Counter	Counts the number of copies.
TF1	Fusing Thermofuse	Opens the fusing lamp circuit if the fusing unit overheats.
TH1	Fusing Thermistor	Detects the temperature of the hot roller.

1.7.2 ADF

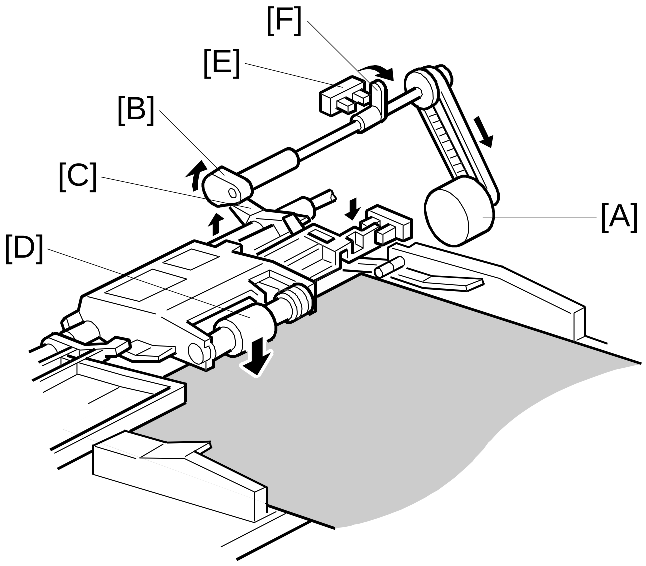
Symbol	Name	Function	Index No.
Motors			
M1	Pick-up	Moves the pick-up roller up and down.	3
M2	Feed-in	Drives the feed belt, and the separation, pick-up, and transport rollers.	8
M3	Transport Belt	Drives the transport belt.	9
M4	Feed-out	Drives the exit and inverter rollers.	14
M5	Bottom Plate	Moves the bottom plate up and down.	7
Sensors			
S1	APS Start	Informs the CPU when the DF is opened and closed (for platen mode) so that the original size sensors in the copier can check the original size.	12
S2	DF Position	Detects whether the DF is lifted or not.	13
S3	Original Set	Detects whether an original is on the table.	19
S4	Bottom Plate HP	Detects whether the bottom plate is in the down position or not.	20
S5	Bottom Plate Position	Detects when the original is at the correct position for feeding.	4
S6	Pick-up Roller HP	Detects whether the pick-up roller is up or not.	2
S7	Entrance	Detects when to restart the pick-up motor to lift up the pick-up roller, detects when to change the feed motor direction, detects the trailing edge of the original to finish checking the original length, and checks for misfeeds.	26
S8	Registration	Detects the leading edge of the original to check the original length, detects when to stop the original on the exposure glass, and checks for misfeeds.	21
S9	Original Width 1	Detects the original width.	22
S10	Original Width 2	Detects the original width.	23

Symbol	Name	Function	Index No.
S11	Original Width 3	Detects the original width.	24
S12	Original Length	Detects the original length.	25
S13	Exit	Detects when to stop the transport belt motor and checks for misfeeds.	18
S14	Inverter	Detects when to turn the inverter gate and exit gate solenoids off and checks for misfeeds.	17
S15	Feed Cover	Detects whether the feed cover is open or not.	5
S16	Exit Cover	Detects whether the exit cover is open or not.	15
Solenoids			
SOL1	Exit Gate	Opens and closes the exit gate.	16
SOL2	Inverter Gate	Opens and closes the inverter gate.	11
Magnetic Clutches			
MC1	Feed-in	Drives the feed belt, separation roller, and pick-up roller.	1
PCBs			
PCB1	DF Main	Controls the DF and communicates with the main copier boards.	10
PCB2	DF Indicator	Indicates whether an original has been placed in the feeder, and indicates whether SADF mode has been selected.	6

2. DETAILED SECTION DESCRIPTIONS

2.1 DOCUMENT FEEDER

2.1.1 PICK-UP ROLLER RELEASE



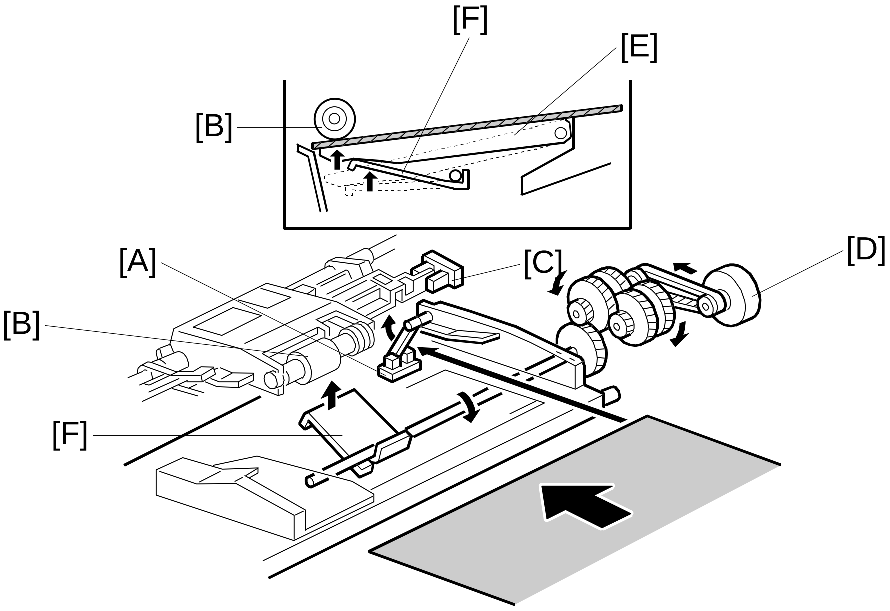
B301D103.WMF

When the original set sensor is off (no original on the original tray), the pick-up roller stays in the up position.

When the original set sensor turns on (or when the trailing edge of a page passes the entrance sensor while pages remain on the original tray), the pick-up motor [A] turns on. The cam [B] rotates away from the pick-up roller release lever [C]. The lever then rises and the pick-up roller [D] drops onto the original.

When the original reaches the entrance sensor, the pick-up motor turns on again. The cam pushes the lever down, and the pick-up roller rises until the pick-up roller HP sensor [E] detects the actuator [F].

2.1.2 BOTTOM PLATE LIFT

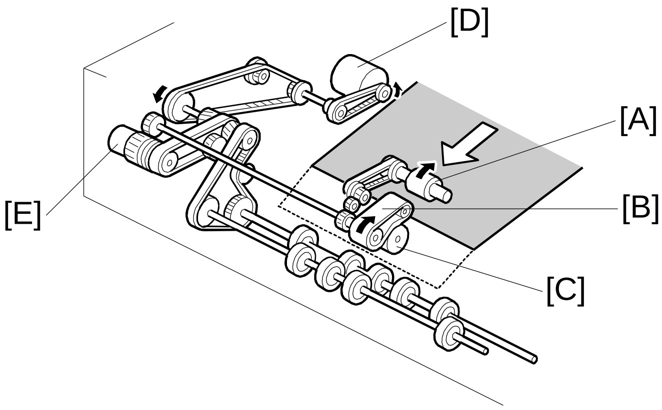


B301D105.WMF

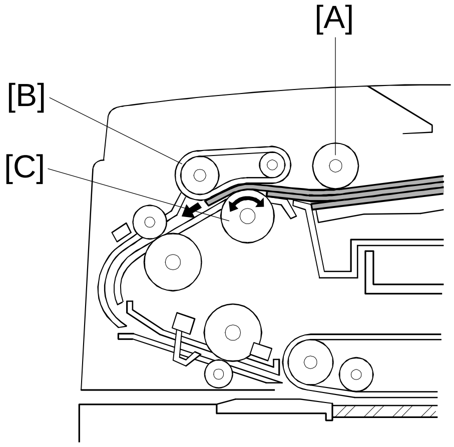
When an original is placed on the original tray, the original set sensor [A] turns on, the pick-up roller [B] drops on to the original, and the bottom plate position sensor [C] turns off. Then the bottom plate motor [D] turns on and lifts the bottom plate [E] by raising the lift lever [F] until the bottom plate position sensor turns on.

The level of the pick-up roller drops as the stack of originals becomes smaller, and eventually, the bottom plate position sensor [C] turns off. Then, the bottom plate motor turns on and lifts the bottom plate until the bottom plate position sensor turns on. This keeps the original at the correct height for feeding.

2.1.3 PICK-UP AND SEPARATION



B301D102.WMF



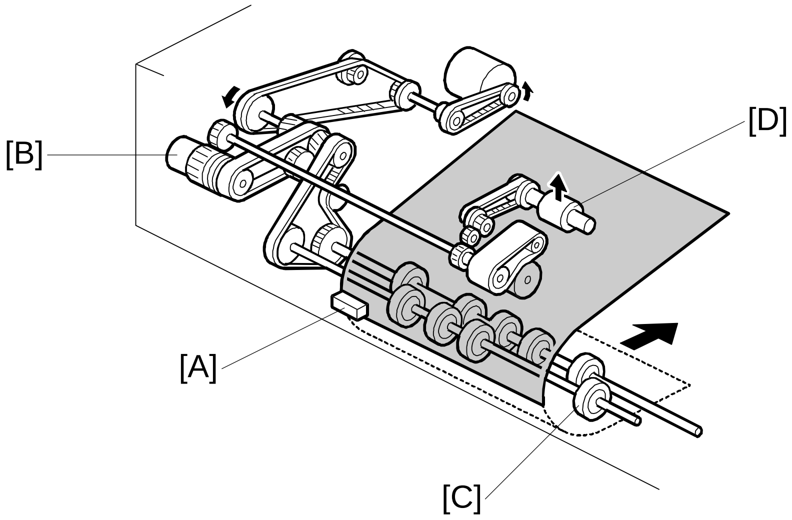
B301D506.WMF

The original separation system is a Feed and Reverse Roller (FRR) system. The pick-up roller [A], feed belt [B], and separation roller [C] are driven by the feed-in motor [D].

To drive this mechanism, the feed-in motor [D] and feed-in clutch [E] turn on.

When two sheets of originals are fed by the pick-up roller, the separation roller turns in the opposite direction to the feed belt and the 2nd sheet is pushed back to the original tray. When there is only one sheet between the feed belt and separation roller, the separation roller rotates in the same direction as the feed belt. This is because the separation roller contains a torque limiter.

2.1.4 ORIGINAL FEED

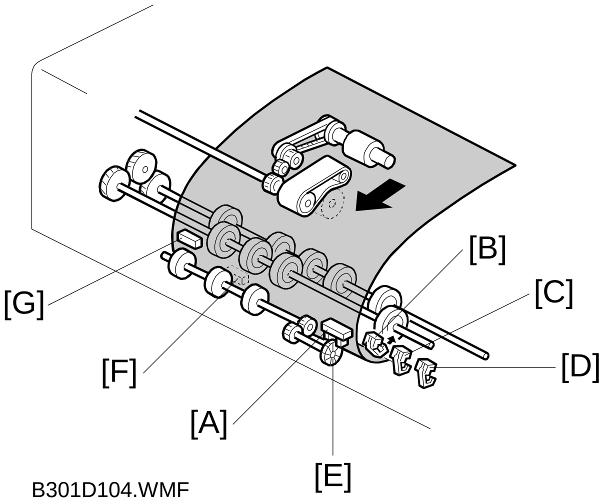


B301D109.WMF

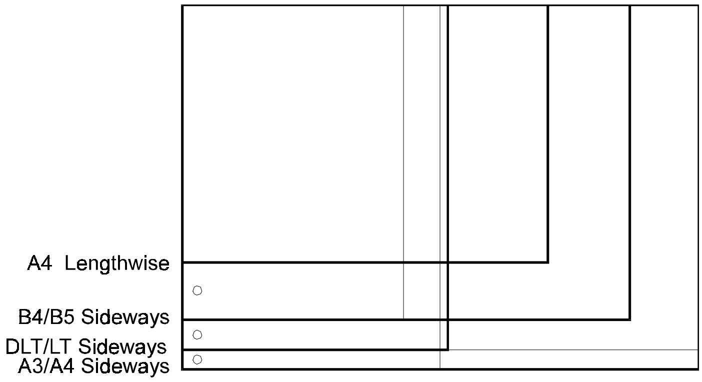
When the leading edge of the original turns the entrance sensor [A] on, the feed-in clutch [B] turns off and the drive for the feed belt is released. The original is fed by the transport rollers [C].

At the same time, the pick-up motor starts again and the pick-up roller [D] is lifted up. When the pick-up roller HP sensor turns on, the pick-up motor stops (see Pick-up Roller Release).

2.1.5 ORIGINAL SIZE DETECTION



B301D104.WMF



B301D503.WMF

The DF detects the original size by combining the readings of original length sensor [A], and original width sensors-1 [B], -2 [C], and -3 [D].

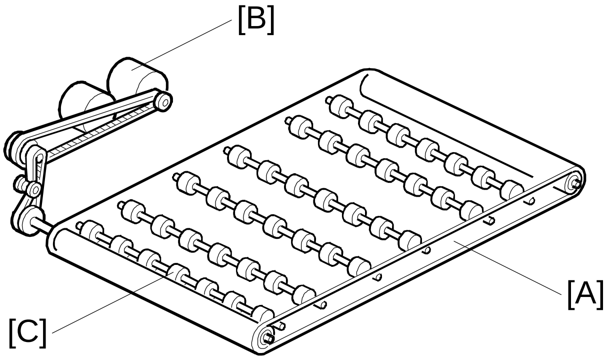
Original Length

The original length sensor and the disk [E] (connected to the transport roller) generate a pulse signal. The CPU counts pulses, starting when the leading edge of the original turns on the registration sensor [F], until the trailing edge of the original turns off the entrance sensor [G].

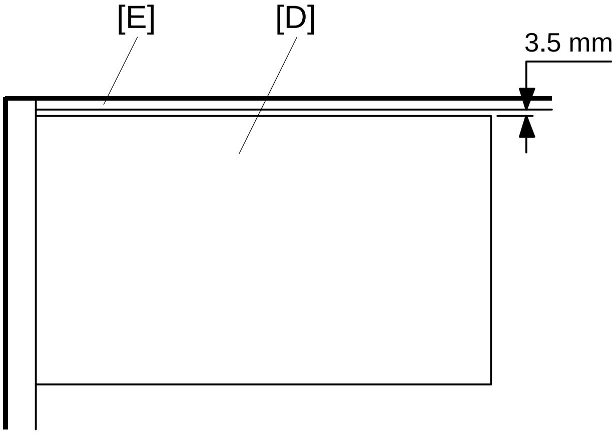
Original Width

The CPU detects original width using three original width sensors -1, -2, -3 as shown above. Three small circles on the diagram indicate the positions of the sensors.

2.1.6 ORIGINAL TRANSPORT



B301D106.WMF



B301D509.WMF

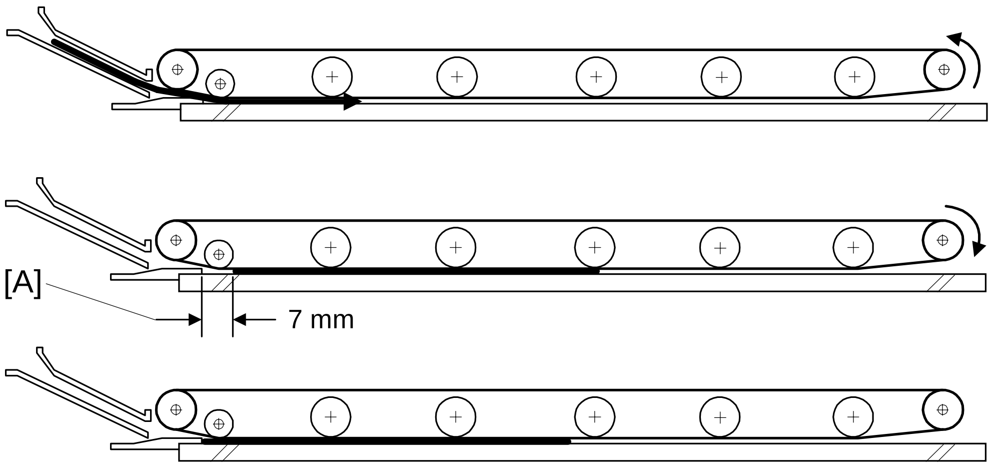
The transport belt [A] is driven by the transport belt motor [B]. The transport belt motor starts when the copier sends an original feed-in signal.

Inside the transport belt are six pressure rollers which maintain the correct pressure between the belt and original. The pressure roller [C] closest to the left original scale is made of rubber for the stronger pressure needed for thick originals. The other rollers are sponge rollers.

Normally, originals are manually placed at the left rear corner, so an original [D] fed from the DF must also be at this position. But if the original is fed along the rear scale [E], original skew, jam, or wrinkling may occur.

To prevent such problems, the original transfer position is set to 3.5 mm away from the rear scale as shown. The 3.5 mm gap is compensated for by changing the starting position of the main scan.

2.1.7 ORIGINAL SKEW CORRECTION



B301D500.WMF

The transport belt motor remains energized to carry the original about 7 mm past the left scale [A] (see the middle drawing). Then the motor stops and reverses to feed the original back against the left scale (see the bottom drawing). This forces the original to hit the left scale, which aligns the trailing edge to minimize original skew on the exposure glass.

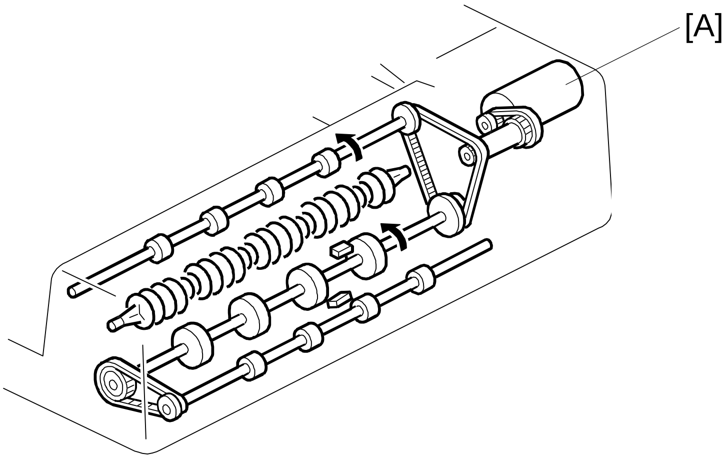
If thin original mode is selected, the original is not forced back against the left scale. This is to prevent damage to the original.

After a two-sided original has been inverted to copy the 2nd side, it is fed in from the inverter against the left scale (see the bottom drawing; the top two drawings do not apply in this mode).

The amount of reverse feed against the left scale can be adjusted with SP modes.

2.1.8 ORIGINAL INVERSION AND FEED-OUT

General Operation



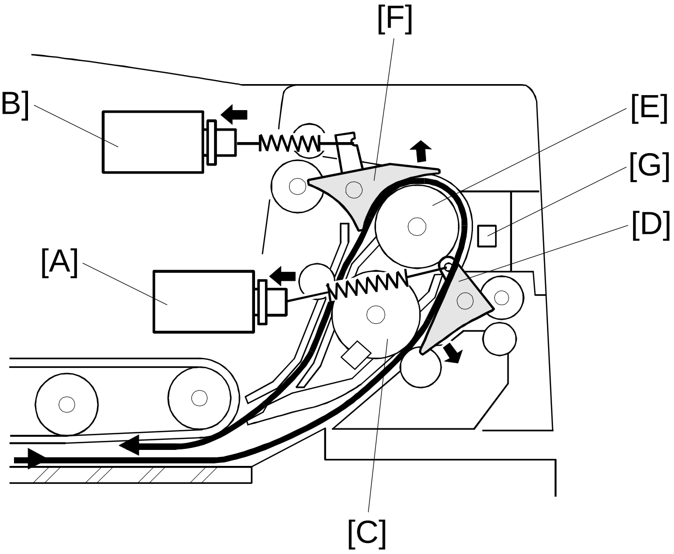
B301D107.WMF

When the scanner reaches the return position, the copier’s CPU sends the feed-out signal to the DF. When the DF receives the feed-out signal, the transport belt motor and feed-out motor [A] turn on. The original is then fed out to the exit tray or fed back to the exposure glass after reversing in the inverter section.

This DF has two exit trays. For single-sided original mode, the original is fed out to the right exit tray and for double-sided original mode, the original is fed out to the upper exit tray.

This causes the originals to be fed out in the correct order on the exit trays and allow the maximum one-to-one copy speed for each mode. The user can change the exit tray to the upper exit tray for single-sided mode (for example, if there is not enough space in the room for the right exit tray to be installed). However, one-to-one copy speed for this mode is reduced.

Original Inversion

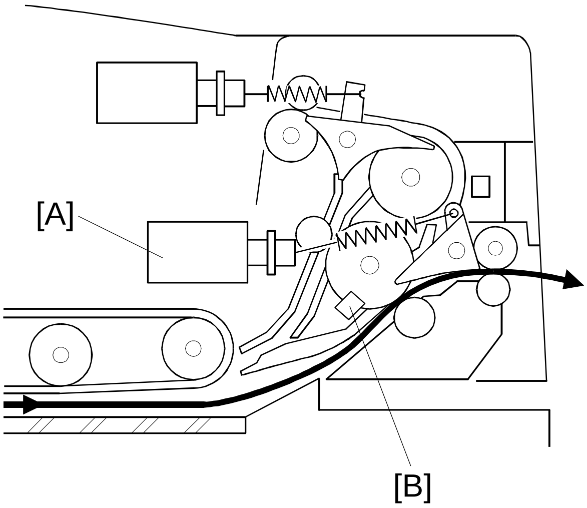


B301D113.WMF

When the DF receives the original invert signal from the copier, the transport belt motor, feed-out motor, exit gate solenoid [A], and inverter gate solenoid [B] turn on and the original is fed back to the exposure glass through the inverter roller [C], exit gate [D], inverter guide roller [E], inverter gate [F], and inverter roller.

The transport belt motor turns in reverse shortly after the leading edge of the original turns on the inverter sensor [G], and feeds the original to the left scale.

Original Exit (Single-Sided Original Mode)

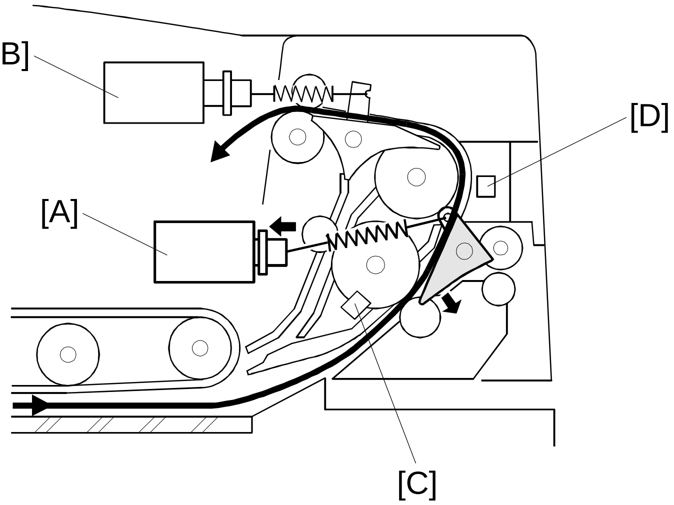


B301D111.WMF

The exit gate solenoid [A] remains off and the original is fed out to the right exit tray. The transport belt motor turns off after the exit sensor [B] turns off.

To stack the originals neatly on the exit tray, the feed-out motor speed is reduced about 30 mm before the trailing edge of the original turns off the exit sensor.

Original Exit (Double-Sided Original Mode)

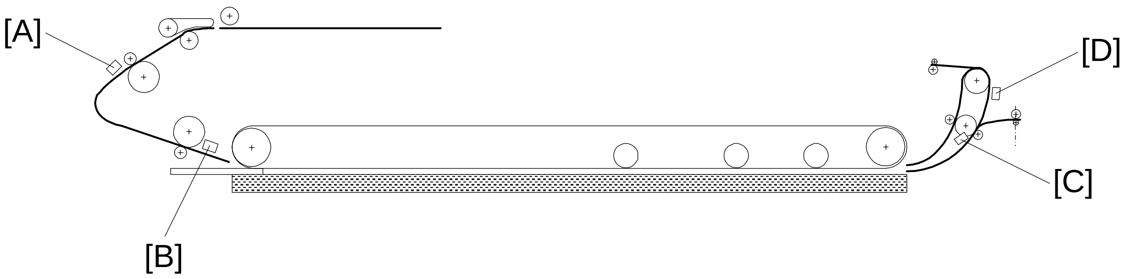


B301D112.WMF

The exit gate solenoid [A] turns on and the inverter gate solenoid [B] remains off, and the original is fed out to the upper tray. The transport belt motor turns off when the trailing edge of the original passes through the exit sensor [C].

To stack the originals neatly on the upper tray, the feed-out motor speed is reduced shortly after the trailing edge of the original turns off the inverter sensor [D].

2.1.9 JAM CONDITIONS



B301D501.WMF

Feed-in

1. The entrance sensor [A] is still off 500 ms after the feed-in motor turned on.
2. The registration sensor [B] is still not off 300 ms after the feed-in motor speed increased.
3. The entrance sensor is still on when the feed-in and transport motors have fed the original 442 mm after the registration sensor turned on.

Feed-out

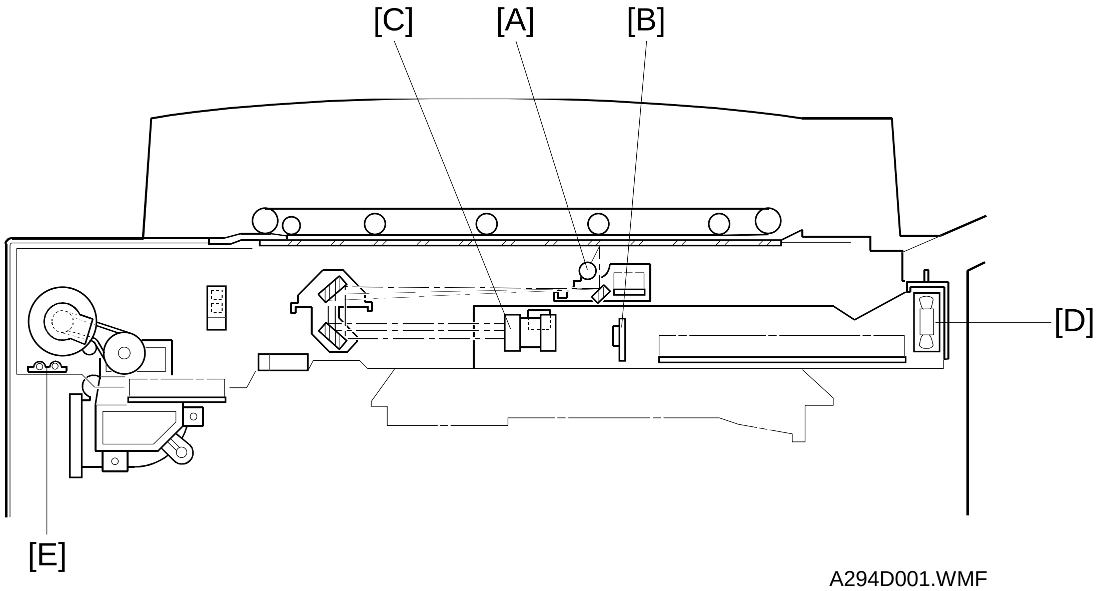
4. The registration sensor is still on when the feed-in and transport motors have fed the original 751 mm after the registration sensor turned on.
5. The exit sensor [C] is still off when the transport and feed-out motors have fed the original 129 mm after the feed-out motor turned on.
6. The exit sensor is still on when feed-out motor has fed the original X mm (X = original length x 1.3) after the exit sensor turned on.

Inversion

7. The exit sensor is still off when the transport and exit motors have fed the original 198 mm after the transport motor turned on to feed the original to the inverter section.
8. The exit sensor is still on when the feed-out motor has fed the original X mm (X = original length x 1.3) after the exit sensor turned on.
9. The inverter sensor [D] is still off when the transport and feed-out motors have fed the original 96 mm after the exit sensor turned on.
10. The inverter sensor is still off when the transport and feed-out motors have fed the original 96 mm to the exposure glass after the exit sensor turned off.

2.2 SCANNING

2.2.1 OVERVIEW



A294D001.WMF

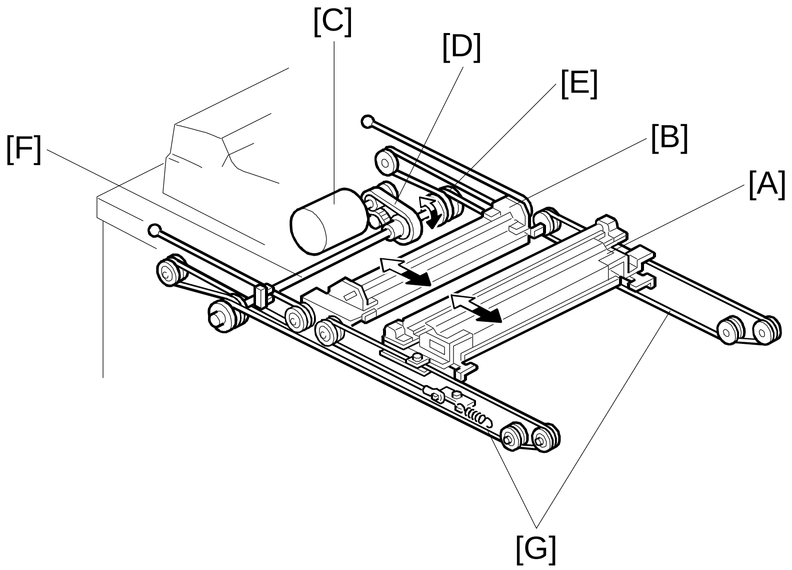
The original is illuminated by the exposure lamp (a xenon lamp) [A]. The image is reflected onto a CCD (Charge Coupled Device) [B] via the 1st, 2nd, and 3rd mirrors, and through the lens [C].

The 1st scanner consists of the exposure lamp, the lamp regulator and the 1st mirror.

There are two fans, optics cooling fan [D] and the SICU cooling fan on the right side of the optics cavity to draw cool air inside. The hot air exits through the vents in the upper cover. The optics cooling fan is turned on when the scanner motor starts and it turns off 10 seconds after the scanner motor turns off. The SICU cooling fan operates whenever the operation switch is on.

If the optional optics anti-condensation heater [E] is installed, it turns on while the main switch is off, to prevent moisture from forming on the optics.

2.2.2 SCANNER DRIVE



A294D003.WMF

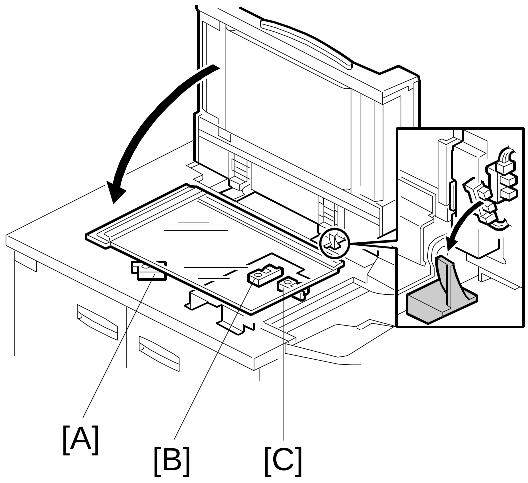
The scanner drive motor is a dc servo motor. The 1st and 2nd scanners [A, B] are driven by the scanner drive motor [C] through the timing belt [D], scanner drive pulley [E], scanner drive shaft [F], and two scanner wires [G].

The MCU board controls the scanner drive motor. In full size mode, the 1st scanner speed is 425 mm/s during scanning. The 2nd scanner speed is half that of the 1st scanner.

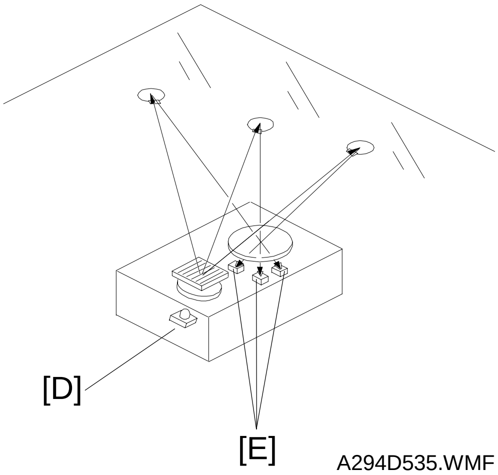
In reduction or enlargement mode, the scanning speed depends on the magnification ratio. The returning speed is always the same, whether in full size or magnification mode. The image length is changed in the sub scan direction by changing the scanner drive motor speed, and in the main scan direction it is changed by image processing on the SICU board.

Magnification in the sub-scan direction can be adjusted by changing the scanner drive motor speed using SP4-008.

2.2.3 ORIGINAL SIZE DETECTION IN BOOK MODE



A294D052.WMF



A294D535.WMF

There are three reflective sensors in the optics cavity for original size detection. The original width sensor [A] detects the original width, and the original length sensor-1 [B] and original length sensor-2 [C] detect the original length. These are the APS (Auto Paper Select) sensors.

Inside each APS sensor, there is an LED [D] and either three photoelectric devices [E] (for the width sensor) or one photoelectric device (for each length sensor). In the width sensor, the light generated by the LED is separated into three beams and each beam scans a different point of the exposure glass (in each length sensor, there is only one beam). If the original or DF cover is present over the scanning point, the beam is reflected and each reflected beam exposes a photoelectric device and activates it.

While the main switch is on, these sensors are active and the original size data is always sent to the main CPU. However, the main CPU checks the data only when the DF is being closed.

Original Size		Length Sensor		Width Sensor			SP4301 Display
A4/A3 Version	**LT/DLT Version**	**2**	**1**	**3**	**4**	**5**	
A3	11" x 17"	❍	❍	❍	❍	❍	00011111
B4	10" x 14"	❍	❍	❍	❍	✗	00011110
F4	81/2" x 14" (8" x 13")	❍	❍	❍	✗	✗	00011100
A4-L	81/2" x 11"	✗	❍	❍	✗	✗	00001100
B5-L	—	✗	❍	✗	✗	✗	00001000
A5-L	51/2" x 81/2"	✗	✗	✗	✗	✗	00000000
A4-S	11" x 81/2"	✗	✗	❍	❍	❍	00000111
B5-S	—	✗	✗	❍	❍	✗	00000110
A5-S	81/2" x 51/2"	✗	✗	❍	✗	✗	00000100

-L: Lengthwise -S: Sideways ❍:High (Paper Present) ✗: Low

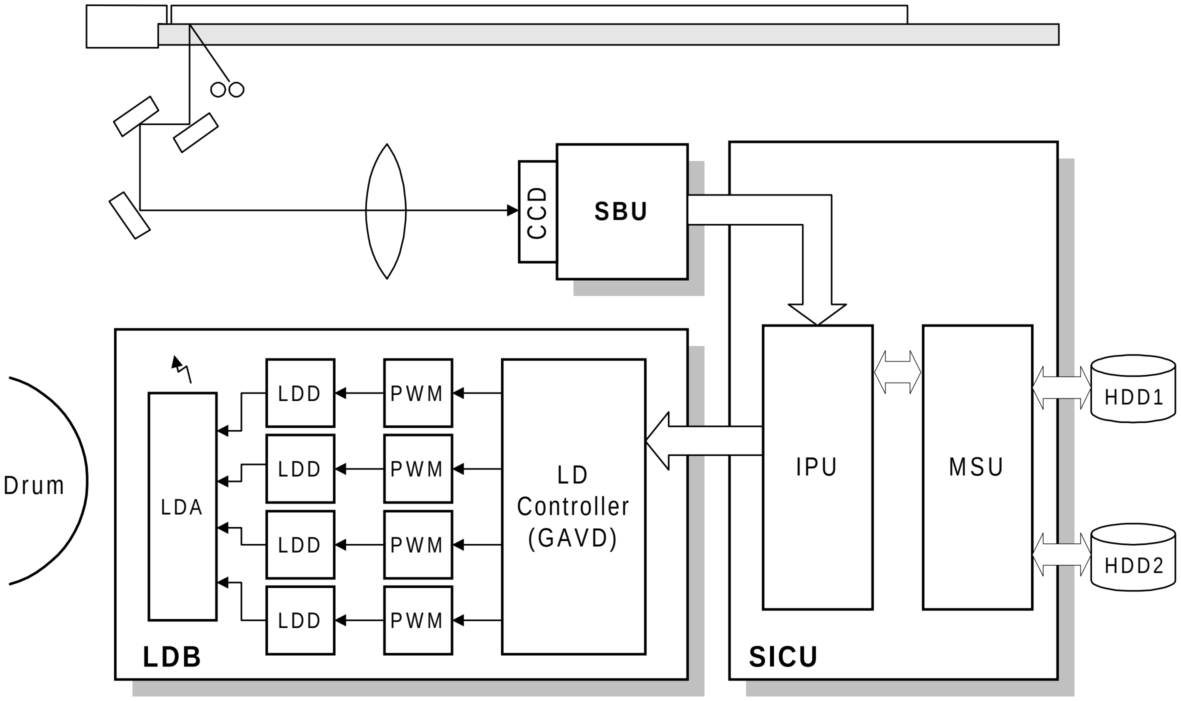
The original size data is taken by the main CPU when the DF position sensor is activated. This is when the DF is positioned about 12 cm above the exposure glass. At this time, only the sensor(s) underneath the original receive the reflected light and switch on. The other sensor(s) are off. The main CPU recognizes the original size from the on/off signals from the five sensors.

If the copy is made with the ADF open, the main CPU decides the original size from the sensor outputs when the Start key is pressed.

The above table shows the outputs of the sensors for each original size. This original size detection method eliminates the necessity for a pre-scan and increases the machine productivity.

2.3 IMAGE PROCESSING

2.3.1 OVERVIEW



A294D578.WMF

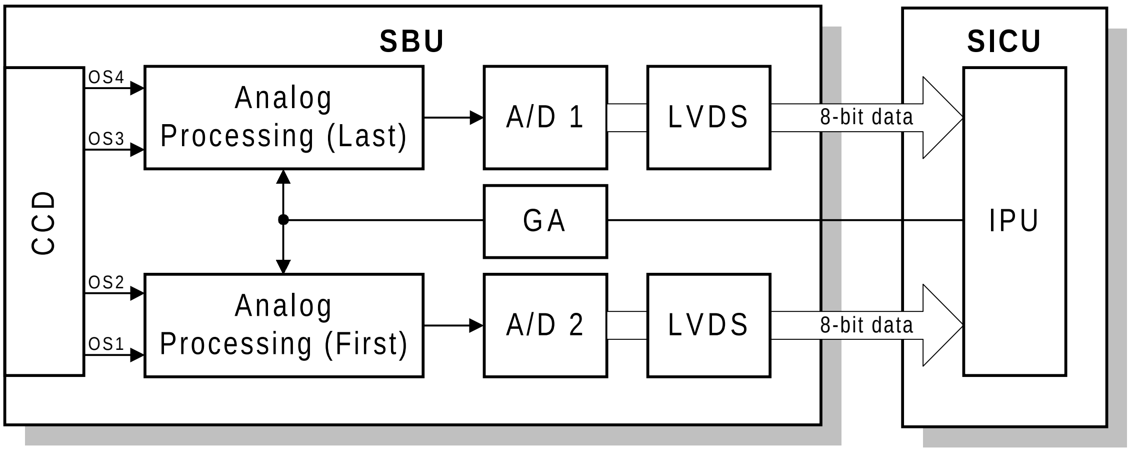
The CCD generates an analog video signal. The SBU (Sensor Board Unit) converts the analog signal to an 8-bit digital signal, then it sends the digital signal to the SICU (Scanner and Image Processing Control Unit) board.

The SICU board can be divided into two image processing blocks: the IPU (Image Processing Unit) and the MSU (Memory Supercharger Unit). These two ICs mainly do the following:

- **IPU:** Auto shading, filtering, magnification, γ correction, gradation processing, and video path control
- **MSU:** Image compression, image rotation, interface with HDD controller, image repeat, and combine originals

Finally, the SICU board sends the video data to the laser diode array (LDA) on the LD drive board (LDB).

2.3.2 SBU


SBU
SICU
CCD
OS4
OS3
OS2
OS1
Analog Processing (Last)
Analog Processing (First)
A/D 1
A/D 2
GA
LVDS
LVDS
8-bit data
8-bit data
IPU

A294D579.WMF

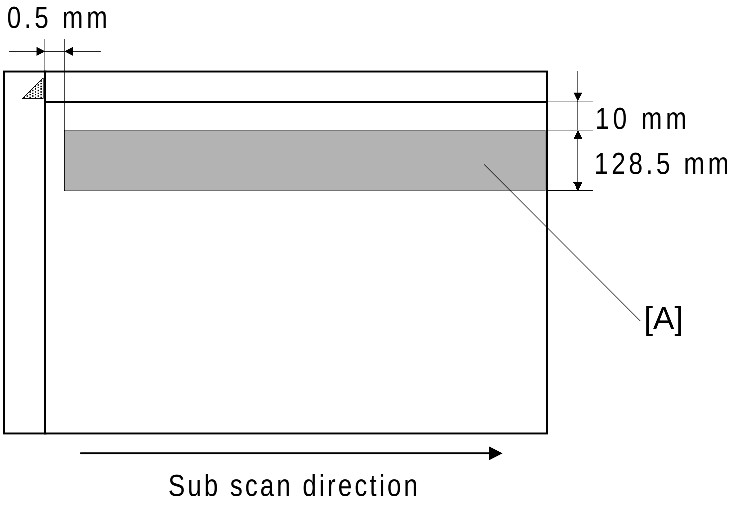
The CCD converts the light reflected from the original into an analog signal. The CCD line has 7,500 pixels and the resolution is 600 dpi (23.6 lines/mm).

The CCD has four output lines: OS1, OS2, OS3, and OS4. OS1 and OS2 are for the first half of the scan line (Non-operation side), and OS3 and OS4 are for the last half of the scan line (Operation side). There are two analog processing ICs; one handles the first half line (OS 1 and OS2) and the other handles the last half line (OS3 and OS4). The analog processing IC performs the following operations:

1) Combines the odd and even signals into one line signal.
2) Adjust the black reference level of each CCD output channel.
3) Amplifies the analog signal from the CCD.

After the above processing, the analog signals are converted to 8-bit signals by the A/D converter. This gives a value for each pixel on scale of 256 grades. Then, the two 8-bit signals are sent to the SICU board through the LVDS (Low Voltage Differential Signaling). The LVDS is a noise-resistant interface.

2.3.3 AUTO IMAGE DENSITY (ADS)



A294D581.WMF

This mode prevents the background of an original from appearing on copies.

The copier scans the auto image density detection area [A]. This corresponds to a narrow strip at one end of the main scan line, as shown in the diagram. As the scanner scans down the page, the IPU on the SICU detects the peak white level for each scan line, within this narrow strip only. From this peak white level, the IPU determines the reference value for A/D conversion for the scan line. Then, the IPU sends the reference value to the A/D controller on the SBU.

When an original with a gray background is scanned, the density of the gray area is the peak white level density. Therefore, the original background will not appear on copies. Because peak level data is taken for each scan line, ADS corrects for any changes in background density down the page.

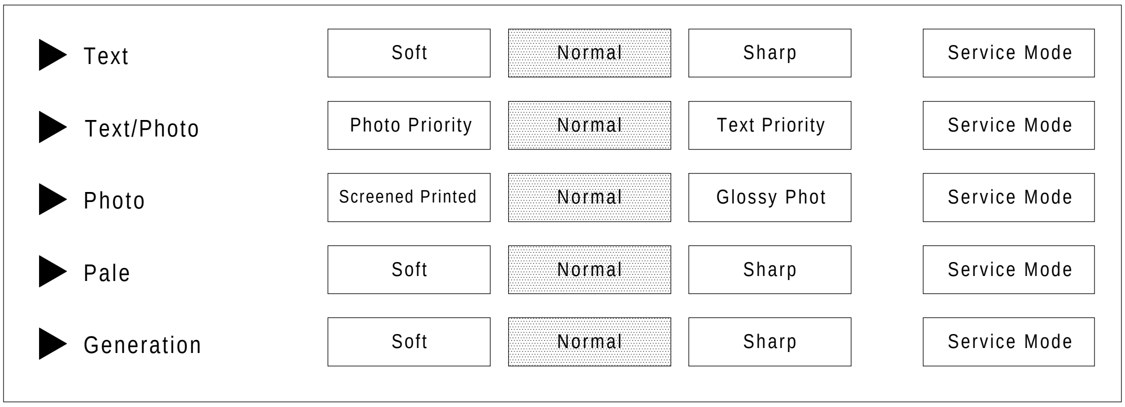
As with previous digital copiers, the user can select manual image density when selecting auto image density mode and the machine will use both settings when processing the original.

2.3.4 IMAGE PROCESSING STEPS AND RELATED SP MODE

The following tables shows the image processing path and the related SP modes used for each image processing mode.

The user can adjust many of the image processing parameters with a UP mode (Copy Features – General Features – Original Mode Quality Level), using fixed settings such as Sharp, Normal, and Soft. Each of these fixed settings has different parameter settings. The user's changes do not affect the SP mode settings.

If the user is not satisfied with any of the available settings for this UP mode, the technician can adjust the SP modes. However, the SP mode settings are not used unless the user selects 'SP Mode Changed' with the UP Mode.



▶ Text	Soft	Normal	Sharp	Service Mode
▶ Text/Photo	Photo Priority	Normal	Text Priority	Service Mode
▶ Photo	Screened Printed	Normal	Glossy Phot	Service Mode
▶ Pale	Soft	Normal	Sharp	Service Mode
▶ Generation	Soft	Normal	Sharp	Service Mode

A294D011.WMF

For more details about the settings available for the user, see Service Tables – Image Quality Setting by UP Mode.

Text Mode

MTF filtering is used in text mode. The MTF filtering coefficient and strength can be adjusted individually for both main and sub scan. Low density originals are produced better when a stronger MTF filter is selected, but in this case, moiré tends to appear.

With UP Mode (Copy Features – General Features – Original Mode Quality Level), the user can select ‘Soft’, ‘Normal’, ‘Sharp’, and ‘SP Mode Changed’. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects ‘SP Mode Changed’.

	Image Processing Steps	**Related SP Modes**
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4903-065 * (Scanner Gamma Threshold Level) • SP4903-070 * (Background Erase Level)
	Independent Dot Erase	• SP4903-060 (Independent Dot Erase Level)
Filtering	MTF	• SP4903-010 to 011 * (Pre-Filter Coefficient) • SP4903-020 to 035 * (MTF Filter Strength)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	• SP4903-84 * (Scanner gamma setting)
Gradation	Error Diffusion/ Line Width Correction	• SP4903-78 to 80 *, 4904-20 (Line Width Correction Type)

Photo Mode

Normally, the smoothing filter is used in photo mode but MTF filtering can also be selected with SP mode.

With UP Mode (Copy Features – General Features – Original Mode Quality Level), the user can select ‘Screen Printed’, ‘Normal’, ‘Continuous Tone’, and ‘SP Mode Changed’. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects ‘SP Mode Changed’.

When the user selects “Normal Paper” and “Continuous Tone”, error diffusion is used for the gradation process. However, if the user selects “Screen Printed”, dither processing is used.

	Image Processing Path	**Related SP Modes**
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4903-66 * (Scanner Gamma Thresh Level) • SP4903-071 * (Background Erase Level)
Filtering	Smoothing/MTF	• SP4903-012 * (Pre Filter Coefficient) • SP4903-009 * (Filter Type Selection) • SP4903-036 to 038 * (Smoothing/MTF Filter Coefficient Level in Photo Mode) • SP4904-006 (Smoothing Filter Level)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	
Gradation	Error Diffusion/ Dither Matrix	• SP4904-002 * (Grayscale Process Selection: Dither or Error Diffusion)

Text/Photo Mode

MTF filtering is used for text/photo mode.

With UP Mode (Copy Features – General Features – Original Mode Quality Level), the user can select ‘Photo Mode’, ‘Normal’, ‘Text Mode’, and ‘SP Mode Changed’. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects ‘SP Mode Changed’.

	Image Processing Path	Related SP Modes
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4930-67 * (Scanner Gamma Thresh Level) • SP4903-072 * (Background Erase Level) • SP4906 * (On/Off in Text/Photo Mode)
	Independent Dot Erase	• SP4903-062 (Independent Dot Erase Level)
Filtering	MTF	• SP4903-013 to 014 * (Pre Filter Coefficient) • SP4903-039 to 054 * (Filter Level and Strength) • SP4904-007 (Texture Erase Filter Level)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	• SP4903-85 * (Scanner gamma setting)
Gradation	Error Diffusion/ Line Width Correction	• SP4904-003, 005 * (Error Diffusion) • SP4903-81 to 83 *, SP4904-22 (Line Width Correction Type)

Pale Mode

The image processing for pale mode is basically the same as in text mode. However, the contrast of the original is low. So, to preserve details, a stronger MTF filter is used. Also, the independent dot erase level is set at a lower level, so that only the faintest of dots are deleted; this ensures that dotted lines and periods are not deleted.

With UP Mode (Copy Features – General Features – Original Mode Quality Level), the user can select ‘Soft’, ‘Normal’, ‘Sharp’, and ‘SP Mode Changed’. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects ‘SP Mode Changed’.

	Image Processing Path	**Related SP Modes**
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4903-068 * (Scanner Gamma Thresh Level) • SP4903-73 * (Background Erase Level)
	Independent Dot Erase	• SP4903-063 (Independent Dot Erase Level)
Filtering	MTF	• SP4903-015 * (Pre Filter) • SP4903-055 to 056 * (MTF Filter Coefficient – Pale Originals)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	
Gradation	Grayscale Processing/ Line Width Correction	• SP4904-23 (Line Width Correction Type)

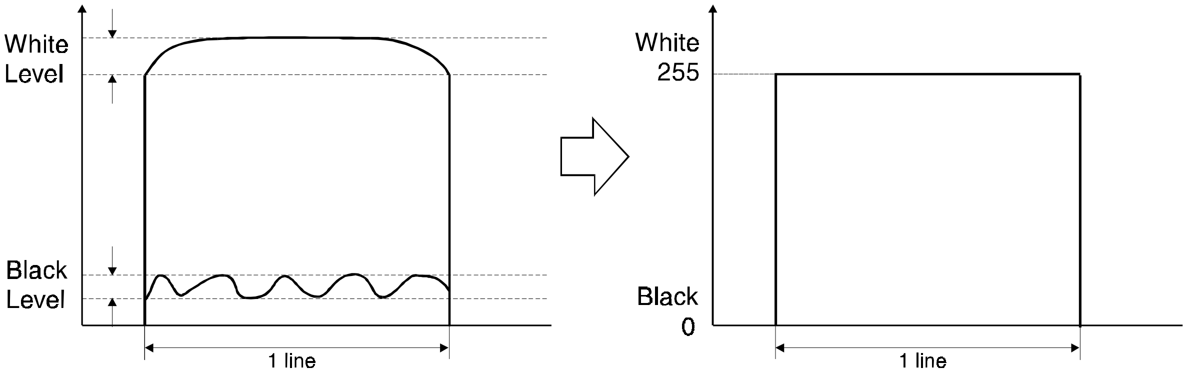
Generation Copy Mode

The image processing for generation mode is basically the same as in text mode, except that in order to prevent lines in the main scan direction from being reproduced too thickly, line width correction is applied for the final gradation treatment. Also, to reduce unwanted black dots, a weaker MTF filter is used; this ensures that isolated dots do not get bigger, and are spread out. These dots will then be deleted by the independent dot erase feature. This feature, however, is kept at a low setting to ensure that important details such as dotted lines and periods are not deleted.

With UP Mode (Copy Features – General Features – Original Mode Quality Level), the user can select ‘Soft’, ‘Normal’, ‘Sharp’, and ‘SP Mode Changed’. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects ‘SP Mode Changed’.

	Image Processing Path	**Related SP Modes**
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4903-069 * (Scanner Gamma Thresh Level) • SP4903-074 * (Background Erase Level)
	Independent Dot Erase	• SP4903-064 (Independent Dot Erase Level)
Filtering	MTF	• SP4903-016 * (Pre Filter Coefficient) • SP4903-057 to 058 * (MTF Filter Coefficient – Generation Copy)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	
Gradation	Grayscale Processing/ Line Width Correction	• SP4903-75 to 77*, SP4904-24 (Line Width Correction Type)

2.3.5 AUTO SHADING



A294D645.WMF

Two things happen during auto shading.

Black Level Correction

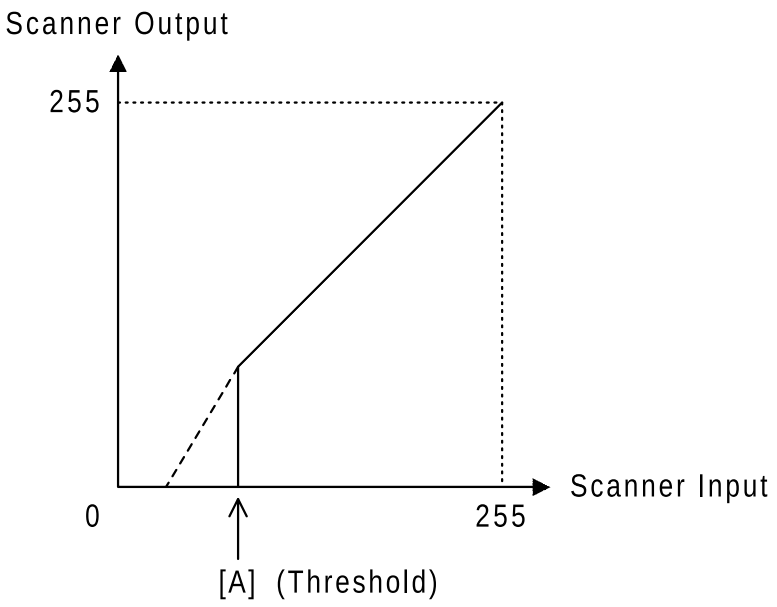
The black level is zeroed for each scan line of data by reading the dummy elements at the end of the CCD signal for each scan line, which should be black.

White Level Correction

The data is corrected for variations in white level across the main scan. To do this, a white reference plate is scanned before each original (book mode) or every 30 s (ADF mode). This corrects for the following effects on each pixel:

- Loss of brightness at the ends of the exposure lamp and the edges of the lens
- Variations in sensitivity among the CCD elements
- Distortions in the light path

2.3.6 BACKGROUND ERASE



A294D591.WMF

Background Erase

The background erase process is used only when setting of SP 4-903-70 to 75 is changed from the default setting (the default is ‘disabled’).

Usually, dirty background is erased using Auto Image Density (ADS). Background Erase should be used when ADS cannot fully erase the dirty background.

There are two Background Erase modes. The one that is being used depends on the SP mode setting. Setting 2 has a stronger effect than setting 1, but setting 2 may cause sudden changes in the data around the threshold level.

Setting 1: MTF correction is not applied to any low image density data that remains after auto shading if the data is lower than a threshold level [A]. The overall effect is to reduce the background in a similar way to that shown by the dotted line in the diagram. This process can be applied for each image mode (except for photo mode) by changing the setting of SP4-903-70, 72, 73 or 74.

Setting 2: Any low image density data that remains after auto shading will be treated as “0” if the data is lower than a threshold level [A]. The background is cut off as shown by the solid vertical line in the diagram at [A]. This process can be applied for each image mode by changing the setting of SP4-903-70, 71, 72, 73 or 74.

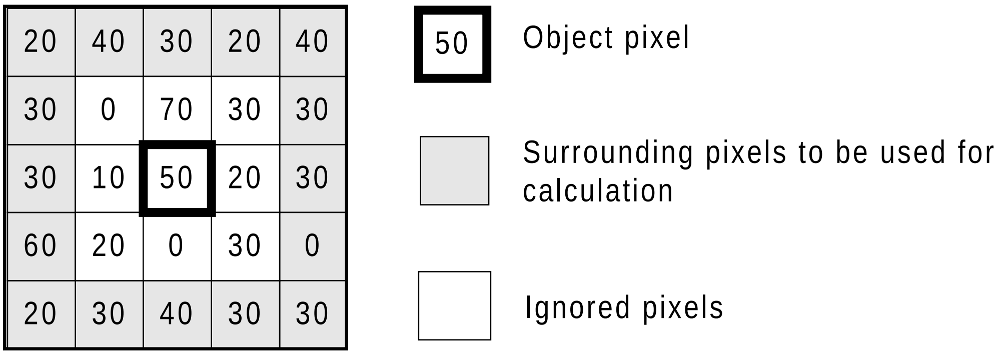
The thresholds can be changed with SP4-903-65 to 69.

2.3.7 INDEPENDENT DOT ERASE

By default, this process is used in all image processing modes except for photo mode. This function allows independent black dots appearing on copies to be erased.

As shown in the drawing below, the software compares each pixel with the pixels in the surrounding 5 x 5 area (except for the immediately adjacent pixels).

If all of the surrounding pixels are white, and the difference between the value of the object pixels and the average of the surrounding pixel is larger than the threshold level, the object pixel is either changed to 0 (white) or reduced in density. The combination of the threshold value and the pixel data reduction ratio depends on the setting of SP4-903-60, 62, 63 or 64. If a larger number is selected, the effect of independent dot erase will be stronger. If 0 is selected, independent dot erase is disabled.



20	40	30	20	40
30	0	70	30	30
30	10	50	20	30
60	20	0	30	0
20	30	40	30	30

A294D592.WMF

2.3.8 FILTERING, MAIN SCAN MAGNIFICATION/REDUCTION

Overview

After auto shading, the image data is processed by both filtering and main scan magnification. However, to reduce the occurrence of moiré in the image, the processing order depends on the reproduction ratio, as follows.

1. 64% reduction or less
   Main Scan Reduction → Filtering
2. 65% reduction or higher
   Filtering → Main Scan Magnification

Filtering

By default, an individual MTF filter is used for each image processing mode, to enhance the desired image qualities. (For Photo mode, smoothing filter is selected as the default setting.)

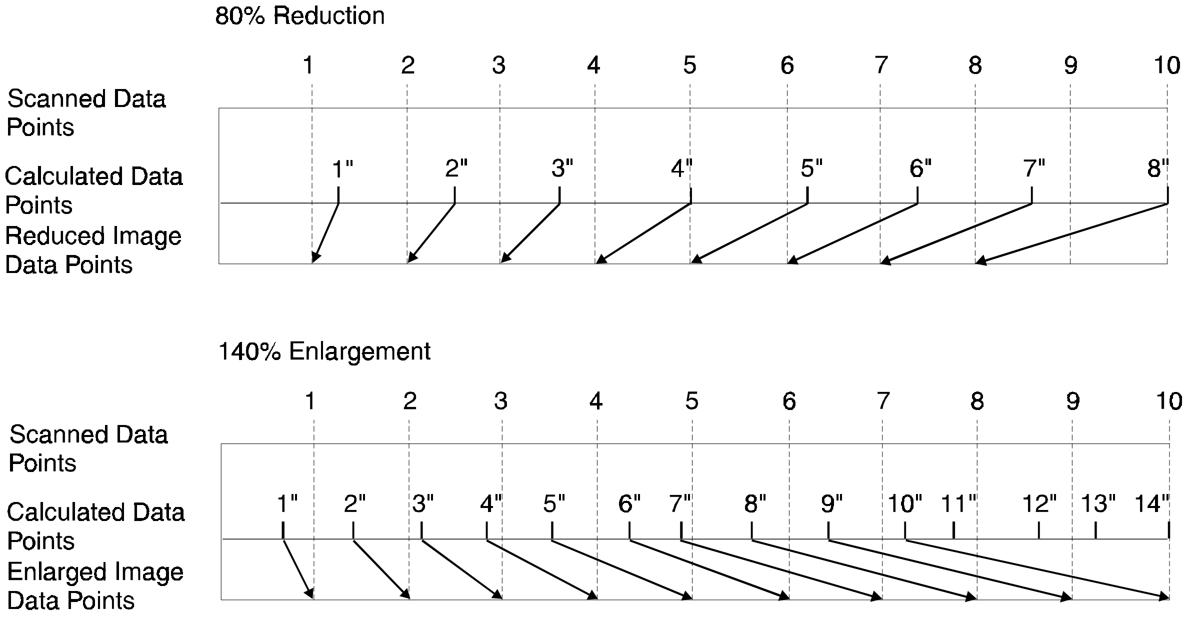
A stronger MTF filter emphasizes sharpness and leads to better reproduction of low image density areas, but may leads to the occurrence of moiré in the image.

The MTF filter strength can be changed by changing the coefficient (MTF Filter Level) and strength of the MTF filter in combination using SP mode. Refer to the combination chart in ‘Image Quality Setting by UP Mode’ in section 4. The filter coefficient and strength can be adjusted in the main scan and sub scan directions individually. This allows the copy quality to be adjusted more precisely, to match the originals normally scanned by a particular customer.

Example: In a case when vertical lines (sub scan) are reproduced clearly, but horizontal lines (main scan) are not reproduced clearly, the technician can adjust the main scan filter only.

For photo mode, the smoothing filter is the default filter, but the MTF filter may be selected by SP mode 4-903-9. This is effective when putting more weight on improving the resolution when copying from “continuous tone” originals.

Main Scan Magnification/Reduction


80% Reduction
1 2 3 4 5 6 7 8 9 10
Scanned Data Points
Calculated Data Points
1" 2" 3" 4" 5" 6" 7" 8"
Reduced Image Data Points
140% Enlargement
1 2 3 4 5 6 7 8 9 10
Scanned Data Points
Calculated Data Points
1" 2" 3" 4" 5" 6" 7" 8" 9" 10" 11" 12" 13" 14"
Enlarged Image Data Points

A294D646.WMF

However, reduction and enlargement in the main scan direction are handled by the IPU chip on the SICU board.

Scanning and laser writing are done at a fixed pitch (the CCD elements cannot be squeezed or expanded). So, to reduce or enlarge an image, imaginary points are calculated that would correspond to a physical enlargement or reduction of the image. The correct image density is then calculated for each of the imaginary points based on the image data of the nearest four true points. The calculated image data then becomes the new (reduced or enlarged) image data.

Main scan magnification can be disabled with SP4-903-5 to test the IPU chip.

Sub Scan Magnification

When the selected magnification is 50% or larger, the image magnification in the sub scan direction is changed by changing the scanner speed. (As the magnification ratio increases, the scanner speed is reduced.)

However, when a magnification ratio smaller than 50% is selected, the required scanner speed exceeds the limit of the scanner motor. So, the scanner speed is reduced to half of the required speed for that reduction ratio. As a result, there are twice as many scan lines as needed. So alternate lines are removed.

Foe example, if a 49% magnification ratio is selected, the scanner speed is the same as the speed of 98% magnification, but the number of sub scan lines used for the image is half of that for 98% magnification.

2.3.9 GAMMA (γ) CORRECTION

Gamma correction ensures accurate generation of the various shades in the gray scale from black to white, accounting for the characteristics of the scanner and printer.

Scanner gamma correction corrects the data output to the IPU to account for the characteristics of the scanner (e.g., CCD response, scanner optics).

Printer gamma correction corrects the data output from the IPU to the laser diode to account for the characteristics of the printer (e.g., the characteristics of the drum, laser diode, and lenses).

The scanner and printer gamma settings can be changed for the ‘Service Mode’ original type of text and text/photo modes, using SP4-903-84 and 85.

2.3.10 GRADATION PROCESSING

Various processes are available to try to reproduce various types of original as faithfully as possible.

The following processes are used in combination depending on the image mode settings.

1) Three-graduation processing
2) Four-graduation processing
3) Error diffusion
4) Dithering

These three processes are used as follows:

Text Mode:	Error diffusion + line width correction and four-graduation processing
Text/Photo Mode:	Error diffusion + line width correction and four-graduation processing
Photo Mode:	Error diffusion or dithering, and three-graduation processing
Generation Copy Mode:	Error diffusion + line width correction, and three-graduation processing
Pale Mode:	Error diffusion and four-graduation processing

Three-graduation Processing

This mode is used in Photo mode.

The image density data after gamma correction is changed into three-graduation data (full dot, half dot, or blank) using two thresholds. With this processing, halftone images are reproduced smoother than with four-graduation processing because of stable dot image reproduction due to only one intermediate density level.

Four-graduation Processing

This process is used in Text mode and Text/Photo mode.

The image density data after gamma correction is changed into 2-bit data using 3 thresholds. The four graduations are reproduced by laser power control. This process is suitable for reproducing fine originals which do not include halftone areas.

Error Diffusion and Dithering

Error diffusion reduces the difference in contrast between light and dark areas of a halftone image. Each pixel is corrected using the difference between it and the surrounding pixels. The corrected pixels are then corrected using an error diffusion matrix.

With dithering, each pixel is compared with a pixel in a dither matrix. Several matrixes are available, to increase or decrease the detail on the copy.

Comparing with dithering, error diffusion gives a better resolution, and is more suitable for “continuous toned” originals. On the other hand, dithering is more suitable for “screen printed” originals.

In Photo mode, when the user selects “Normal Paper” or “Continuous Tone”, error diffusion is used. However, if the user selects “Screen Printed”, dither processing is used. If the user selects “SP Mode Changed”, then error diffusion or one of three types dither matrix can be selected with SP4-904-002. There are three types of dither matrix, 8" x 8", 6" x 6", and 4" x 4". A larger dither matrix causes halftone areas to become coarser.

2.3.11 LINE WIDTH CORRECTION

This function is effective for Text, Text/Photo and Generation modes.

The software compares each pixel with adjacent pixels. If the differences between the object pixel and adjacent pixels are more than a threshold, the software judges that the pixel is on a line edge, and line width correction is applied.

The line width correction setting can be changed separately for Text, Text/Photo and Generation modes. The widths of vertical and horizontal lines can be corrected separately.

- Thinner 1: If the pixel is on the edge of a line, its density is multipled by 0.75
- Thinner 2: If the pixel is on the edge of a line its density is multipled by 0.5
- Thicker: If the pixel is on the edge of a line, 48 is added to its density

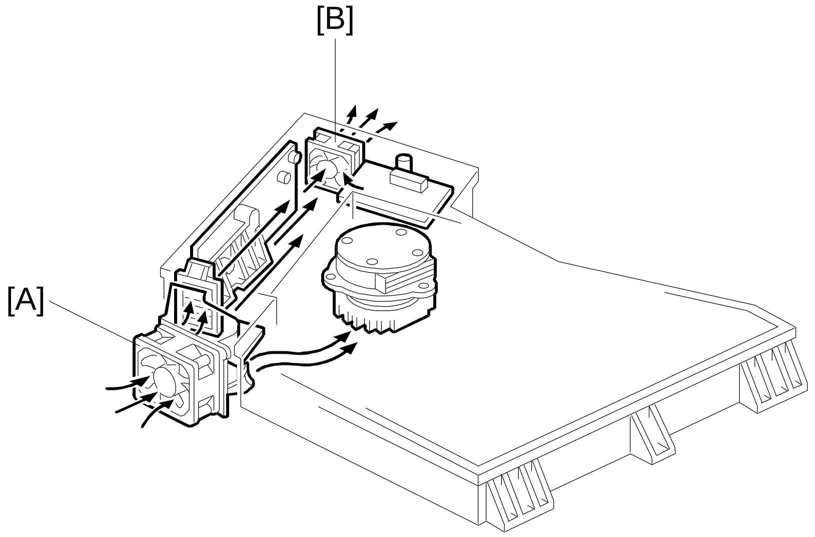
The threshold for detecting edges of lines can also be changed separately for vertical lines and horizontal lines.

Use SP4-903-75 to 83 to adjust the line width correction settings.

Line width can also be corrected by adjusting the laser output (SP4904-20 to 24).

2.4 LASER EXPOSURE

2.4.1 OVERVIEW



A294D103.WMF

This machine uses four laser diodes to produce electrostatic images on an OPC drum. The four parallel beams write four lines at once.

The laser diode unit converts image data from the SICU board into laser pulses, and the optical components direct these pulses to the drum.

Exposure of the drum by the laser beam creates the latent image. The laser beam makes the main scan while drum rotation controls the sub scan.

The strength of each beam is 10 mW on the drum surface at a wavelength of 785 mm.

The polygon motor speed is 29,528 rpm.

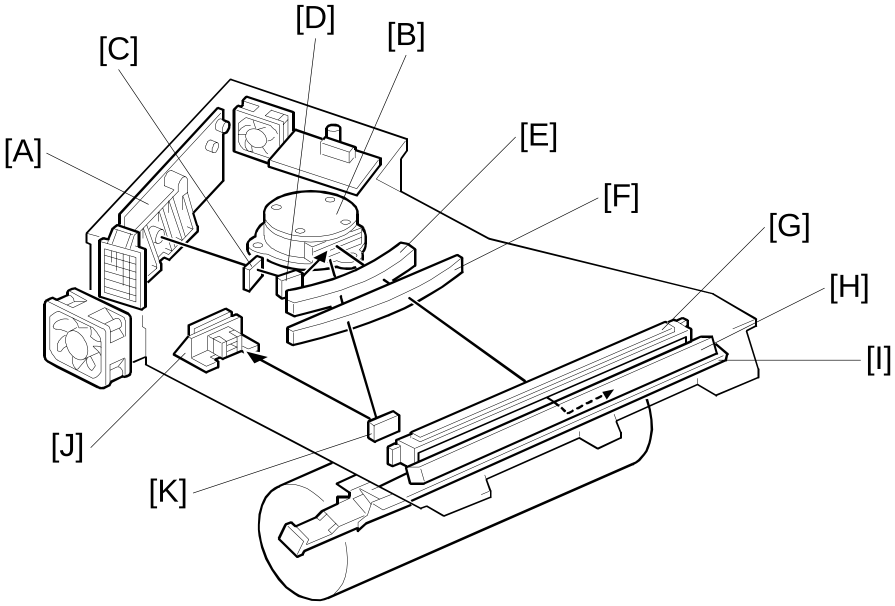
There are up to 4 image density levels for each pixel. To realize this, this machine uses a form of pulse width modulation. In this machine, pulse width modulation consists of the following processes:

- Laser diode pulse positioning
- Laser diode power/pulse width modulation

Laser diode power and pulse width modulation is done by the laser diode drive board (LDR). Briefly, the width of the laser pulse for a pixel depends on the output level (from 0 to 3) required for the pixel.

There are two fan motors, the polygonal motor cooling fan [A] and LDB cooling fan [B], for removing heat in the laser unit.

2.4.2 OPTICAL PATH



A294D101.WMF

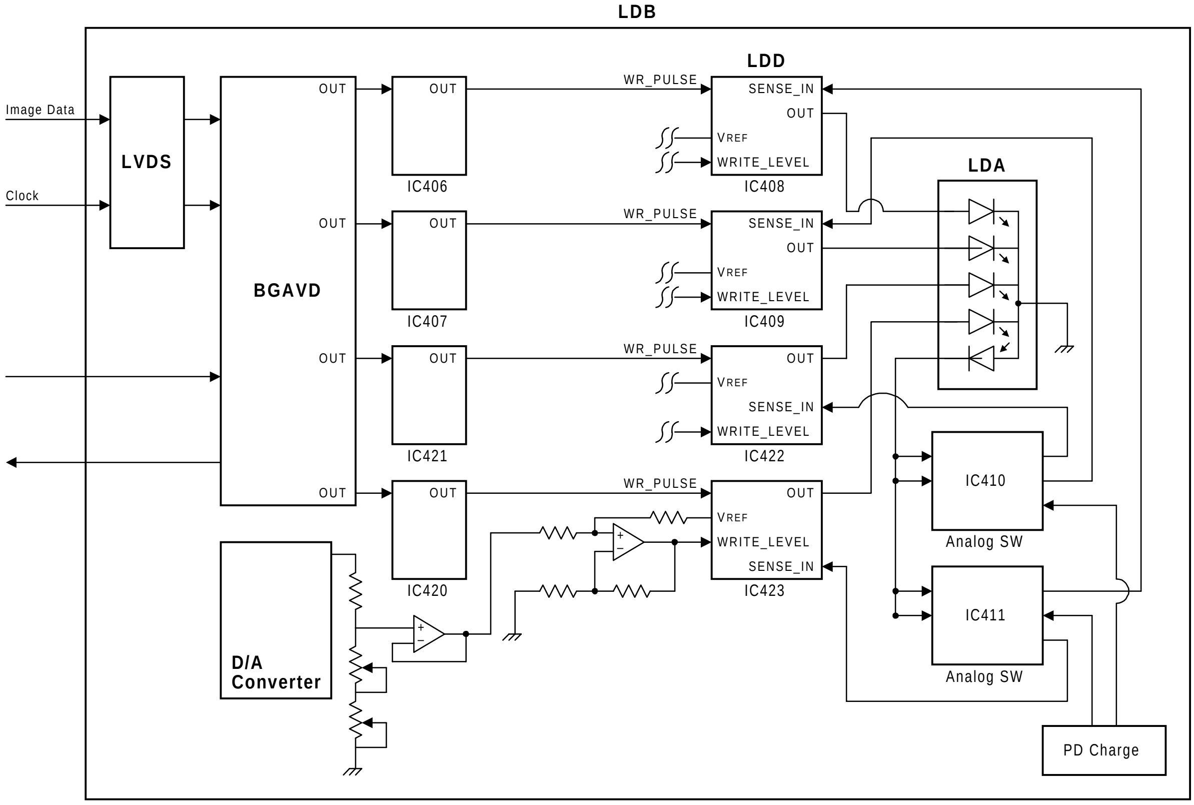
The output path from the laser diode to the drum is shown above.

The LD unit [A] outputs four laser beams to the polygonal mirror [B] (six mirror surfaces) through the cylindrical lens [C] and the 1st mirror [D].

Each surface of the polygon mirror reflects four full main scan lines. The laser beams go to the F-theta lens 1 [E], F-theta lens 2 [F], BTL (barrel toroidal lens) [G], and mirror [H]. Then these laser beams go to the drum through the toner shield glass [I].

The laser synchronizing detector [J] determines the main scan starting position. This board generates and sends a synchronization signal when the laser synchronization detector mirror [K] reflects the laser beam to the detector as the laser beam starts its sweep across the drum. The detector detects only the uppermost beam (channel 1) of the four.

2.4.3 AUTO POWER CONTROL (APC)


LDB
LDD
Image Data
Clock
LVDS
BGAVD
OUT
IC406
IC407
IC421
IC420
WR_PULSE
SENSE_IN
VREF
WRITE_LEVEL
IC408
IC409
IC422
IC423
LDA
IC410
Analog SW
IC411
Analog SW
D/A Converter
PD Charge

A294D999.WMF

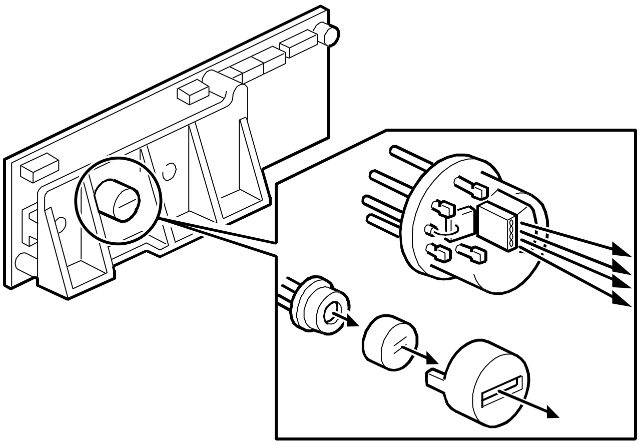
There are four LD drivers (IC408, IC409, IC422 and IC423) on the LDB (Laser diode Drive Board). The LD drivers control the laser diodes on the 4-channel laser diode array. Even if a constant electric current is applied to the laser diode, the intensity of the output light changes with the temperature. The intensity of the output decreases as the temperature increases.

In order to keep the output level constant, IC410 and IC411 monitor the current passing through the photodiode (PD). Then they increase or decrease the current to the laser diode as necessary, comparing it with the reference levels (VREF). To apply APC separately to each laser diode using only one photo diode, the monitor current is sent in turn to each laser diode.

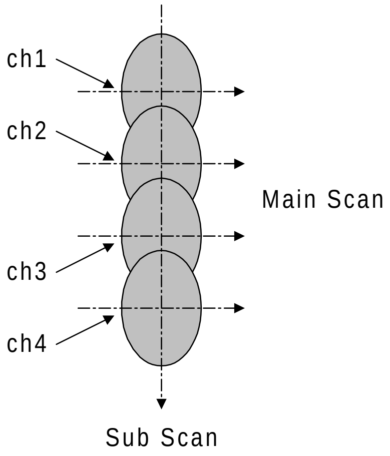
This auto power control is done just after the machine is turned on and during printing while the laser diode is active.

The reference levels are adjusted on the production line. Do not touch the variable resistors on the LDB in the field.

2.4.4 FOUR BEAM LASER WRITING



A294D102.WMF



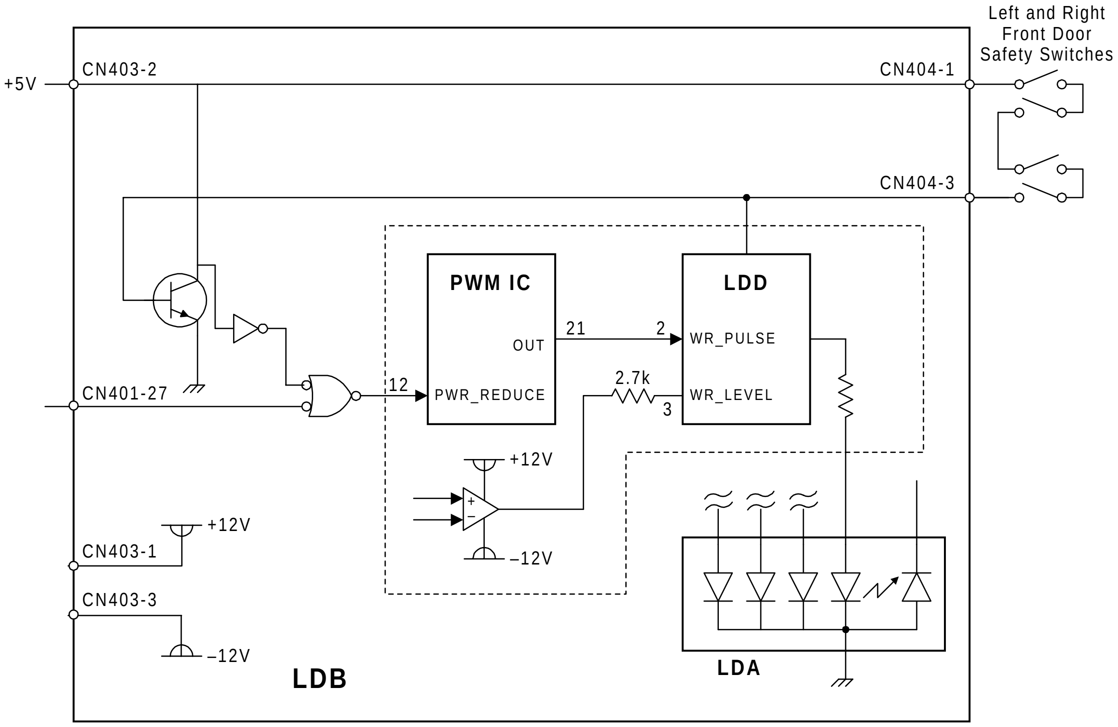
A294D500.WMF

This laser unit has four LD diodes for writing the image. This means that each surface of the polygonal mirror motor writes four main scan lines, and 24 main scan lines are produced when the polygonal mirror rotates once. Due to this multi beam writing, the polygonal mirror motor speed can be reduced, thus the noise generated by the polygonal mirror motor can be reduced.

The four laser beams are transferred to the polygonal mirror through a collimating lens. When the four laser beams arrive on the drum surface, the diameter of the beam spot is 50 x 60 (main scan direction x sub scan direction) µm, and the distance between each pixel is approximately 42 µm. So the beam spots overlap each other as shown above.

The laser diode array is assembled and adjusted in the factory, and no adjustment can be done in the field.

2.4.5 LD SAFETY SWITCHES


Left and Right
Front Door
Safety Switches
+5V
CN403-2
CN404-1
CN404-3
PWM IC
OUT
PWR_REDUCE
LDD
WR_PULSE
WR_LEVEL
21
2
12
2.7k
3
CN401-27
+12V
−12V
CN403-1
CN403-3
LDB
LDA

A294D998.WMF

To ensure technician and user safety and to prevent the laser beam from inadvertently switching on during servicing, there are four safety switches inside the front cover.

When one of the front covers is open, the 5 V line connecting to the LD drivers (LDD) is disconnected. The above diagram shows one LD and driver circuit as an example. There are four of these on the LDB board. Additionally, the OUT terminal of the PWM IC is automatically set at a low level to prevent any power from being supplied from the PWM IC to the LDD.

Even if 12 V is supplied from the op amp which controls the LD power level, the power will be less than the minimum power required for LD lighting (5 mA) due to the 2.7 kΩ resistor.

2.5 DRUM UNIT

2.5.1 PROCESS CONTROL

Overview

The drum potential will gradually change because of the following factors.

- Dirty charge corona casing and grid plate
- Changes in drum sensitivity

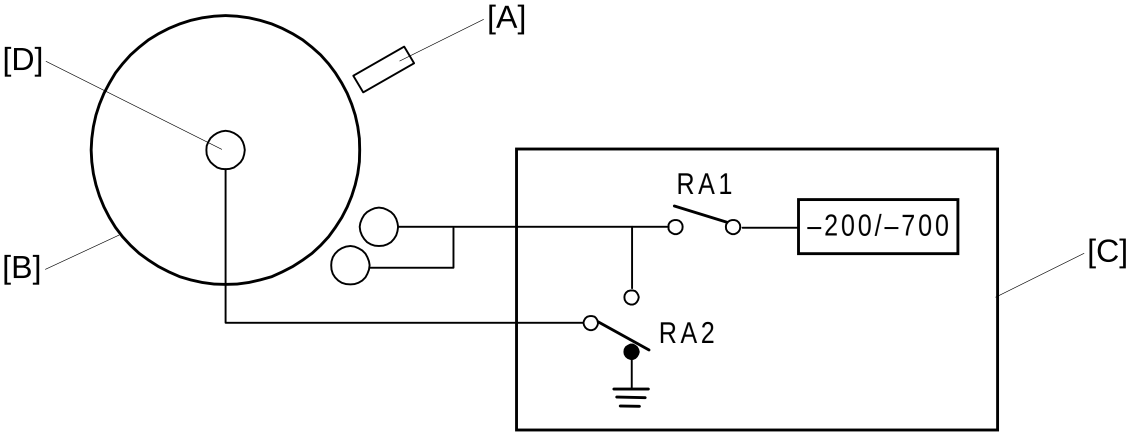
To maintain good copy quality, the machine does the following just after the main switch has been turned on (if the fusing temperature is less than 100 °C and SP3-901 is on).

1) Potential Sensor Calibration
2) V_{SG} Adjustment
3) V_G (Grid Voltage) Adjustment
4) LD Power Adjustment
5) V_{REF} Update

This process is known as ‘Process Control Initial Setting’. The rest of this section will describe these steps in more detail.

Processes 1, 3, and 4 in the above list compensate for changes in drum potential. Processes 2 and 5 are for toner density control; see the “Toner Density Control” section for more details.

Drum Potential Sensor Calibration



A294D641.WMF

The drum potential sensor [A] detects the electric potential of the drum surface [B].

Since the output of the sensor is affected by environmental conditions, such as temperature and humidity, the sensor needs recalibration at times. This is done during process control initial setting.

The charge/bias/grid power pack [C] has two relay contacts. Usually RA2 grounds the drum. However, to calibrate the sensor, the BCU switches RA2 and RA1 over, which applies the power pack output voltage to the drum shaft [D].

The machine automatically calibrates the drum potential sensor by measuring the output of the sensor when –200 V and –700 V are applied to the drum. From these two readings, the machine can determine the actual drum potential from the potential sensor output that is measured during operation.

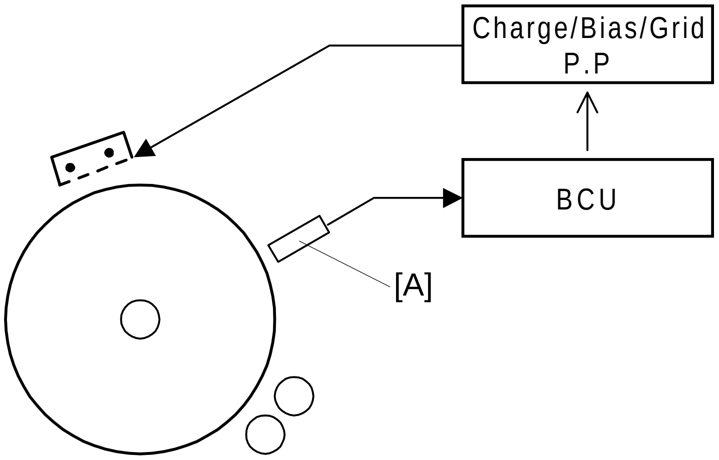
During calibration, if the rate of change in drum potential sensor response to applied voltage is out of the target range, an SC310 or SC311 is logged and auto process control turns off. The V_G and LD power adjustments are skipped; V_G is set to the value stored in SP2-001-01, and LD power is set to the values stored in SP2-103.

V_{SG} Adjustment

This calibrates the ID sensor output for a bare drum to 4.0 ± 0.2 V. It does this by changing the intensity of the light shining on the drum from the sensor. This is done automatically during process control initial setting, and it can also be done manually with SP3-001-002.

If the ID sensor output cannot be adjusted to within the standard, an SC353 or 354 is logged and the light intensity is set to the previous accepted value.

V_G Adjustment



A294D642.WMF

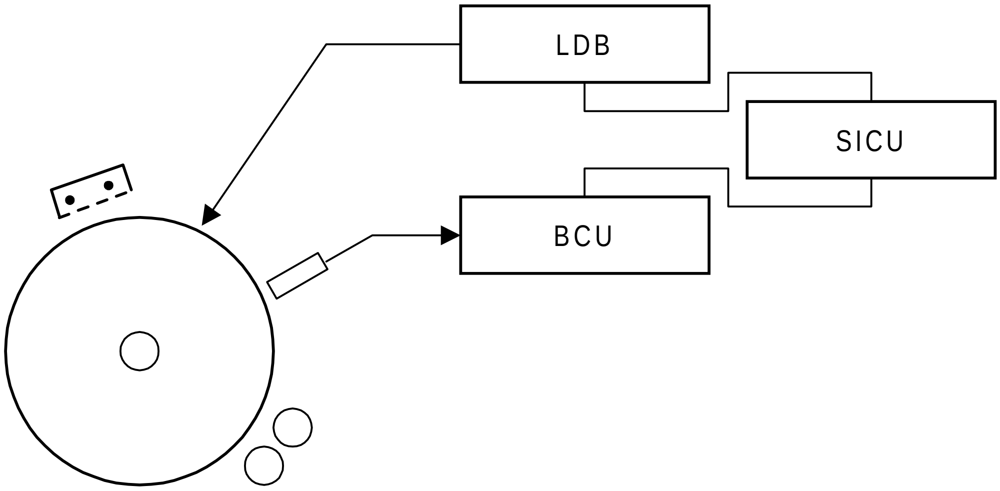
The potential on unexposed areas of the drum (V_D) gradually changes during drum life. To keep V_D constant, the grid voltage (V_G) is adjusted during process control initial setting.

The BCU checks V_D using the drum potential sensor [A]. If it is not within the target range (–900 V ± 20 V), the BCU adjusts V_G (Grid Voltage) through the charge/bias/grid power pack to get the correct target voltage.

The most recently detected values can be displayed with SP3-902-2 (V_D) and 3-902-4 (V_G).

If the CPU cannot get V_D within the target range by changing V_G, V_G is set to the value stored in SP2-001-01 and LD power is set to the value stored in SP2-103. Then SC312, SC313, or SC315 is logged.

LD Power Adjustment



A294D643.WMF

This adjustment uses the drum potential sensor to keep the ID sensor pattern at the same density, so that VREF will be updated correctly (see the next page).

The VH pattern is developed using the current LD power (the density is the same as the ID sensor pattern). The drum potential sensor detects the potential on this pattern. The LD power is adjusted until VH becomes –265 V ± 20 V.

This is done only during process control initial setting.

The latest VH can be displayed using SP3-902-3. The size of the correction applied to the LD power can be displayed using SP3-902-5 (the default is stored in SP2-103-1-4).

If VH cannot be adjusted to within the standard within 20 attempts, LD power is set to the latest value (the one used for the 20th attempt) and SC314 or SC316 is logged.

VREF Update

The TD sensor reference voltage (VREF) is updated to stabilize the concentration of toner in the development unit as follows;

New VREF = Current VREF + ∆VREF

∆VREF is determined using the following table.

VSP/VSG	**∆VREF**
≤ 3/40	+0.08
≤ 9/100	+0.04
≤ 21/200	+0.00
≤ 1/8	–0.06
≤ 4/25	–0.12
≤ 41/200	–0.18
≤ 1/2	–0.24
> 1/2	Previous VREF

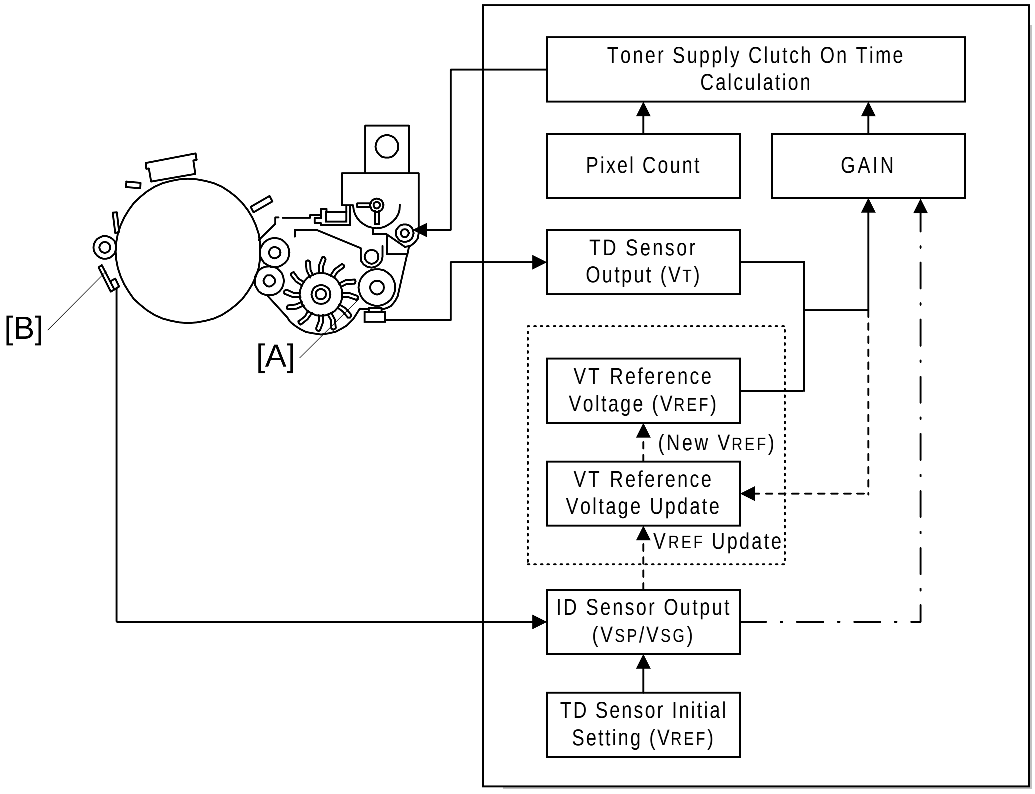
When SC353 or SC354 is generated, VREF is not updated. The machine uses the current value.

VREF is updated during process control initial setting. It is also updated at the end of the copy job, if 10 or more copies have been made since the last VREF update. It is not updated at the start of a job or at any time during a job.

2.5.2 TONER DENSITY CONTROL

Overview

There are two modes for controlling toner supply: sensor control mode and image pixel count control mode. The mode can be selected with SP2-208. The factory setting is sensor control mode. Image pixel count mode should only be used if the TD or ID sensor is defective and cannot be replaced immediately.


Toner Supply Clutch On Time Calculation
Pixel Count
GAIN
TD Sensor Output (VT)
VT Reference Voltage (VREF)
(New VREF)
VT Reference Voltage Update
VREF Update
ID Sensor Output (VSP/VSG)
TD Sensor Initial Setting (VREF)
[B]
[A]

A294D644.WMF

Sensor Control Mode

Introduction

In sensor control mode, the machine varies toner supply for each copy to maintain the correct proportion of toner in the developer and to account for changes in drum reflectivity over time. The adjustment depends on two factors.

- Amount of toner needed to print the page (based on the black pixel amount for the page).
- Readings from the TD sensor [A] and ID sensor [B].

Sensor control mode has two phases, called ‘ID sensor control’ and ‘TD sensor control’. In ID sensor control, VSP/VSG from the most recent ID sensor pattern check determines the GAIN factor in the toner supply calculation (see later in this section). In TD sensor control mode, GAIN depends on the current TD sensor output also (VT – VREF is used).

The phase that is used depends on the number of copies since the start of the job. See the table below for details.

Number of copies in the job	Copy no.	Control method
10 or fewer	1 to 10	ID Sensor Control
More than 10	First 10	ID Sensor Control
	From 11	TD Sensor Control

Toner Density Sensor Initial Setting

When new developer is installed, TD sensor initial setting must be done using SP2-801. This sets the sensor output to 2.5 V. This value will be used as the TD sensor reference voltage (VREF).

If the sensor output cannot be adjusted to within the standard, SC341 or SC342 is logged and the toner density control is set to the pixel count control.

VSP and VSG Detection

The ID sensor detects the following voltages.

- VSG: The ID sensor output when checking the drum surface
- VSP: The ID sensor output when checking the ID sensor pattern

In this way, the reflectivity of both the drum and the pattern on the drum are checked.

The ID sensor pattern is made on the drum with the charge corona and laser diode.

VREF Update

To update VREF (the TD sensor reference voltage), VSP/VSG is detected at the end of the copy job, if 10 or more copies have been made since the last VREF update. This compensates for any variations in the reflectivity of the pattern on the drum or the reflectivity of the drum surface. The 10-copy interval can be changed using SP2-210.

VREF is also updated during process control initial setting.

If the reading of the ID sensor becomes abnormal while checking the ID sensor pattern, SC350, SC351, or SC352 is logged and the toner density control is done using TD sensor only.

See “VREF Update” in the Process Control section for more details.

V_T Detection

The toner density in the developer is detected once every copy cycle, after the trailing edge of the image passes the development roller.

If the reading from the TD sensor becomes abnormal during a copy job, the machine holds the GAIN factor constant to allow toner supply to vary with only the pixel count for the rest of the copy job. Then at the end of the job, SC340 is generated and the machine must be repaired.

If the TD sensor needs to be replaced and none is available, the toner supply mode can be set to image pixel count mode using SP2-208.

Image Pixel Count

For each copy, the CPU adds up the value of each pixel and converts the sum to a value between 0 and 255. (The value would be 255 if the page was all black.)

Gain Determination

GAIN is another factor in the toner supply clutch on time calculation. Its value can be 0, 1, 1.5, 2, 3, or 4. It is calculated either using V_{SP}/V_{SG} if ID sensor control is being used, or every copy using "$V_T - V_{REF}$" if TD sensor control is being used (see Sensor Control Mode – Overview for more on TD and ID sensor control).

ID Sensor Control	
V_{SP}/V_{SG}	GAIN
$\le 3/40$	0
$\le 9/100$	0
$\le 21/200$	1
$\le 1/8$	1.5
$\le 4/25$	2
$\le 41/200$	3
$\le 1/2$	4
$> 1/2$	1

TD Sensor Control	
$a = V_T - V_{REF}$	GAIN
$a < 0.00$	0
$0.00 \le a < 0.02$	1
$0.02 \le a < 0.08$	2
$0.08 \le a < 0.14$	3
$0.14 \le a$	4

Toner Supply Clutch On Time Calculation

The toner supply clutch on time for each copy is decided using the following formula: (GAIN x Image pixel count x 0.7mg/cm^2/Toner Supply Rate) + 50 ms

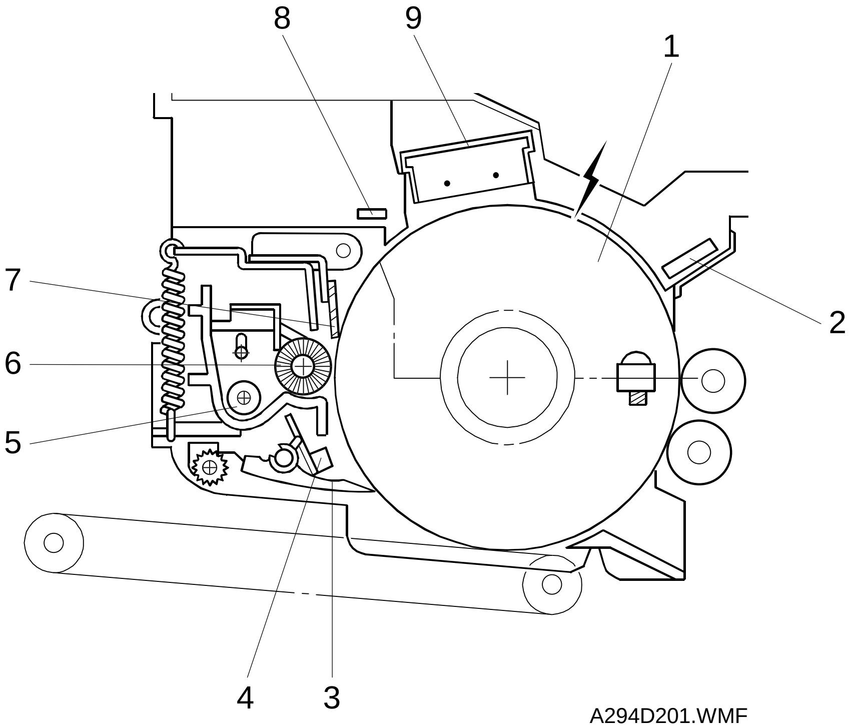
When GAIN is "0", the above 50 ms is set to "0".

The toner supply rate can be changed using SP2-209.

Image Pixel Count Control

This mode should only be use as a temporary countermeasure while waiting for replacement parts, such as a TD sensor. This mode controls the toner supply using the same formula for the toner supply clutch on time. However, the GAIN value is fixed at 0.7.

2.5.3 DRUM UNIT COMPONENTS

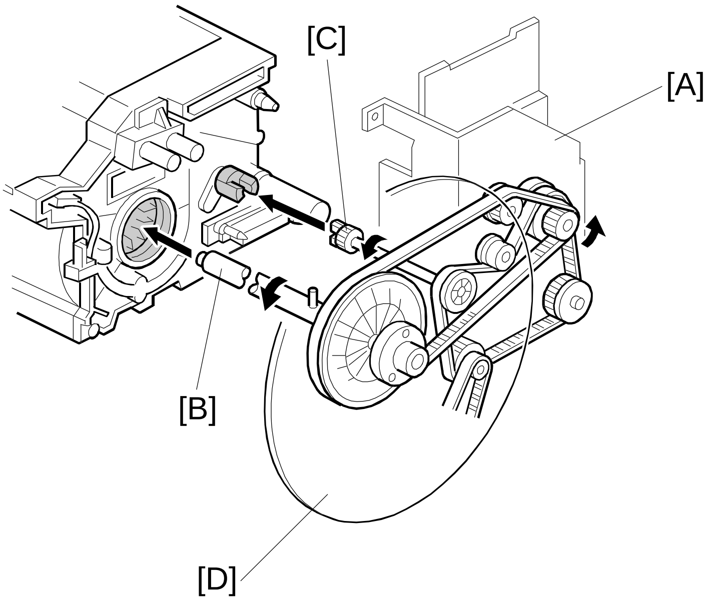


A294D201.WMF

The drum unit consists of the components shown in the above illustration. An organic photoconductor drum (diameter: 100 mm) is used for this model.

1. OPC Drum
2. Drum Potential Sensor
3. Pick-off Pawl
4. Image Density Sensor
5. Toner Collection Coil
6. Cleaning Brush
7. Cleaning Blade
8. Quenching Lamp
9. Charge Corona Unit

2.5.4 DRIVE



A294D202.WMF

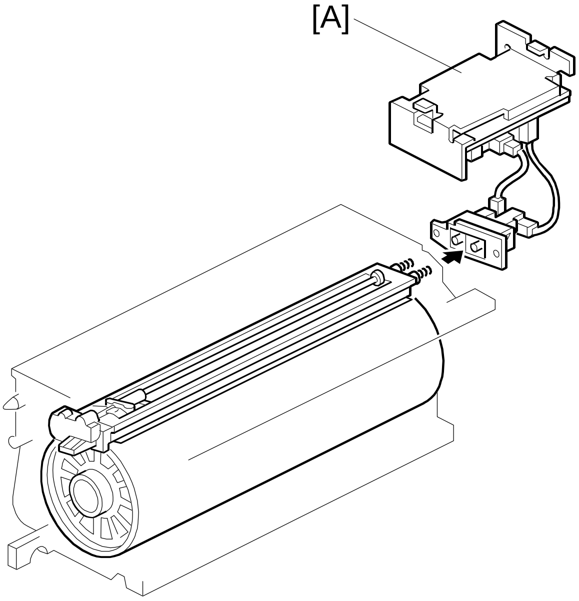
The drive from the drum motor [A] is transmitted to the drum and the cleaning unit through some timing belts, gears, the drum drive shaft [B], and the cleaning unit coupling [C].

The drum motor has a drive controller, which outputs a motor lock signal when the rotation speed is out of the specified range.

The fly-wheel [D] on the end of the drum drive shaft stabilizes the rotation speed.

2.5.5 DRUM CHARGE

Overview



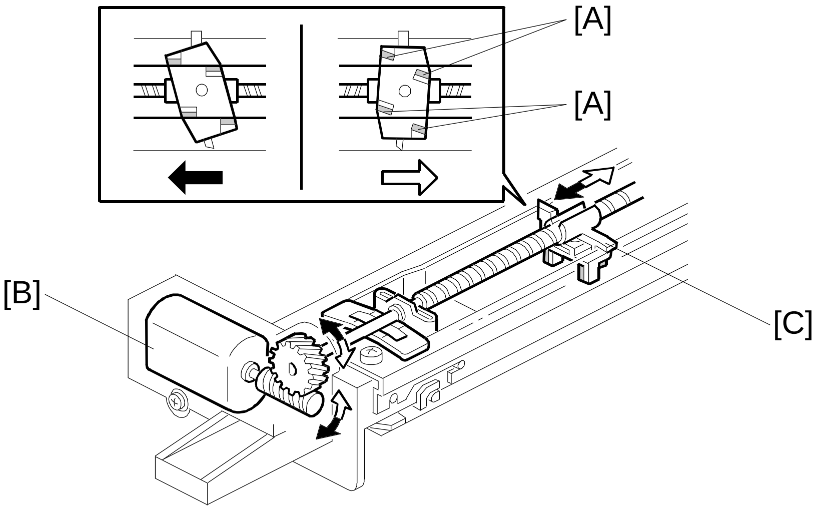
A294D203.WMF

This copier uses a double corona wire scorotron system to charge the drum. Because of the high speed of this copier, two corona wires are needed to give a sufficient negative charge to the drum surface. The stainless steel grid plate makes the corona charge uniform and controls the amount of negative charge on the drum surface by applying a negative voltage to the grid.

The charge/bias/grid power pack [A] gives a constant corona current to the corona wires (–1,200 µA).

The voltage to the grid plate is automatically controlled to maintain the correct image density in response to changes in drum potential caused by dirt on the grid plate and charge corona casing. This is described in the Process Control section in more detail.

Charge Corona Wire Cleaning



A294D558.WMF

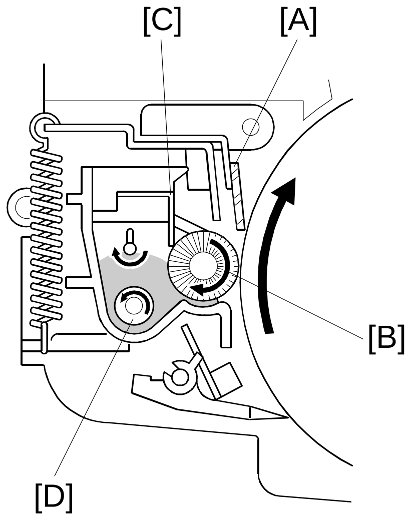
Air flowing around the charge corona wire may deposit toner particles on the corona wires. These particles may interfere with charging and cause low density bands on copies.

The wire cleaner pads [A] automatically clean the wires to prevent such a problem.

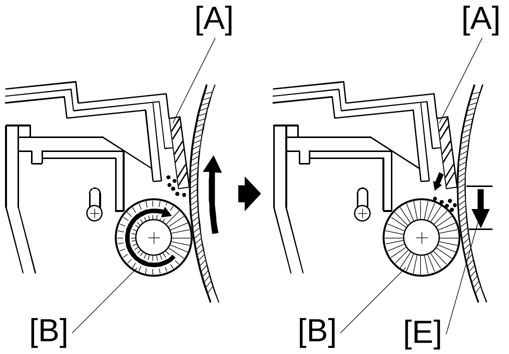
The wire cleaner is driven by a dc motor [B]. Normally the wire cleaner [C] is at the front end (this is the home position). Just after the main switch is turned on, the wire cleaner motor turns on to bring the wire cleaner to the rear and then back to the home position. When the wire cleaner moves from the rear to the home position (black arrow in the illustration), the wire cleaner pads clean the wires. Cleaning is done at auto process control, if 5,000 copies were made since since the wires were cleaned last, but only if the fusing temperature is less than 100°C.

2.5.6 DRUM CLEANING

Overview



A294D204.WMF



A294D205.WMF

This copier uses a counter blade system to clean the drum. In a counter blade system, the drum cleaning blade [A] is angled against drum rotation. The counter blade system has the following advantages:

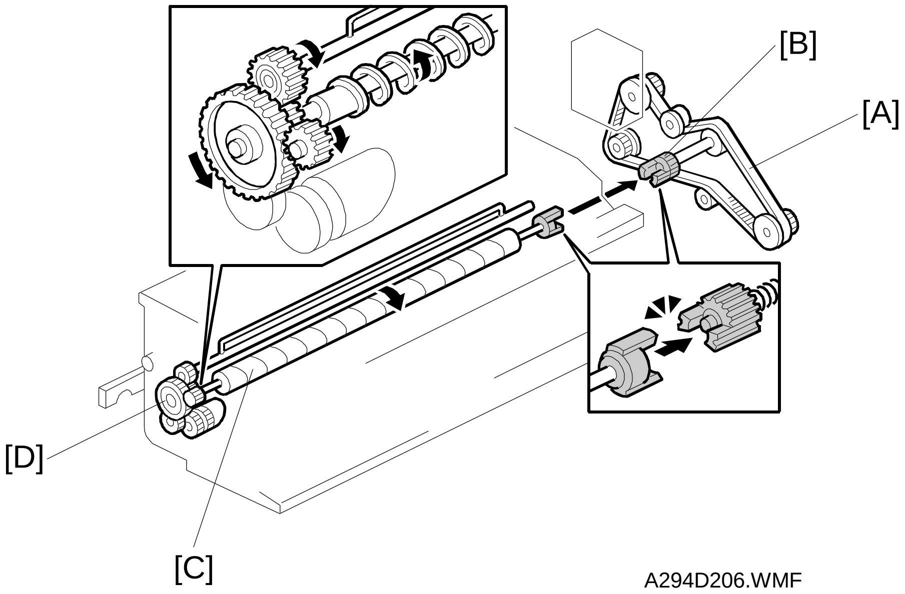
- Less wearing of the cleaning blade edge
- High cleaning efficiency

Due to the high efficiency of this cleaning system, the pre-cleaning corona and cleaning bias are not used for this copier.

The cleaning brush [B] helps the cleaning blade. The brush removes toner from the drum surface and any remaining toner is scraped off by the cleaning blade. Toner on the cleaning brush is scraped off by the mylar [C] and falls onto the toner collection coil [D]. The coil transports the toner to back to the toner entrance tank in the toner bank unit for recycling.

To remove any accumulated toner at the edge of the cleaning blade, the drum turns in reverse for about 4 mm [E] at the end of every copy job. The accumulated toner is deposited on the drum and is removed by the cleaning brush.

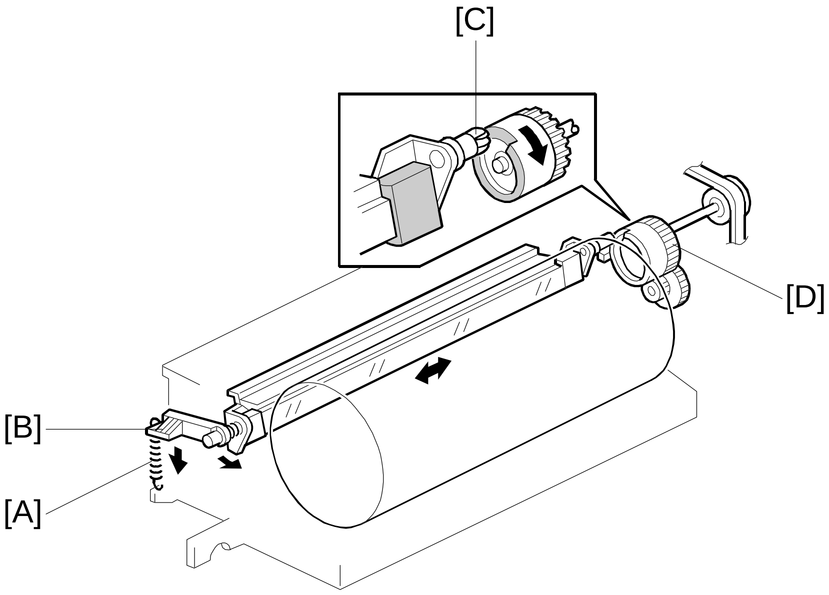
Cleaning Unit Drive



Drive from the drum motor is transmitted to the cleaning unit drive gear via the timing belt [A] and the cleaning unit coupling [B]. This coupling drives the cleaning brush [C] directly. The cleaning brush then transmits the drive to the gear at the front, which drives the toner collection coil gear [D].

Toner recycling is described in the Toner Supply and Recycling section.

Cleaning Blade Pressure and Side-to-Side Movement



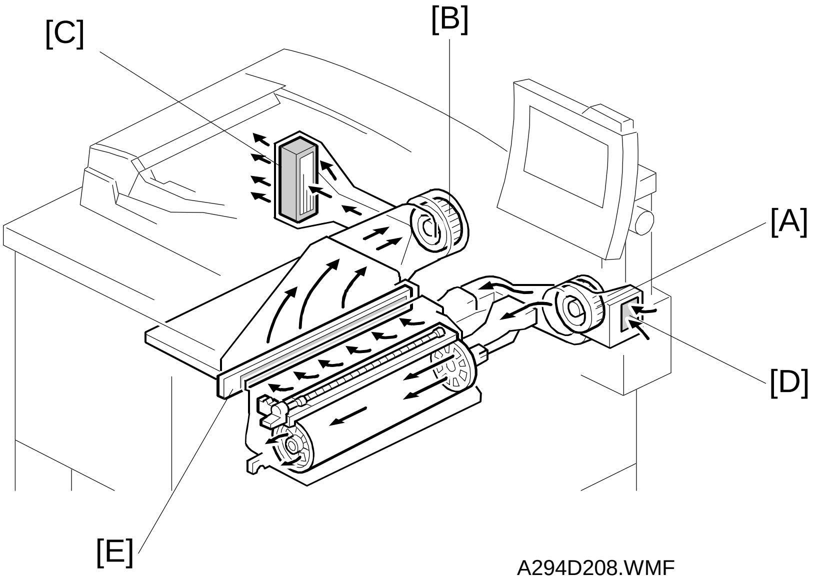
A294D207.WMF

The spring [A] always pushes the cleaning blade against the drum. The cleaning blade pressure can be manually released by pushing up the release lever [B]. To prevent cleaning blade deformation during transportation, the release lever must be locked in the pressure release (upper) position.

The guide roller [C] at the rear end of the cleaning blade holder touches the cam gear [D], which moves the blade from side to side. This movement helps to disperse accumulated toner to prevent early blade edge wear.

2.5.7 OTHERS

Air Flow Around the Drum



A294D208.WMF

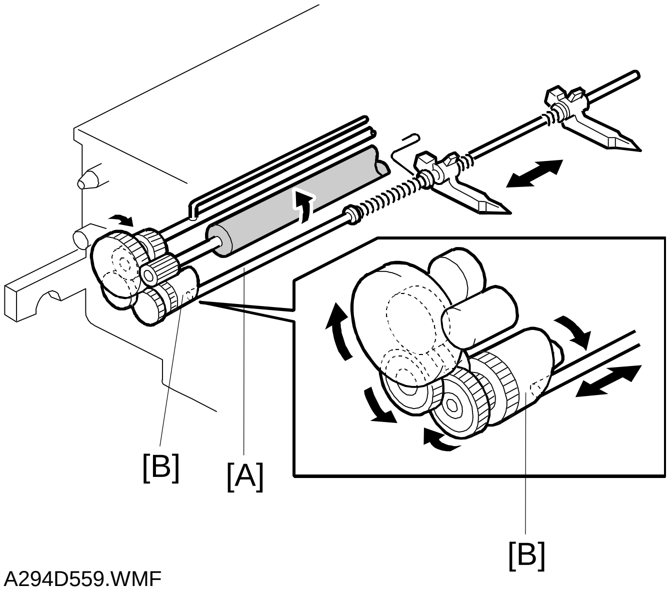
The drum cooling fan [A] provides air flow into the drum to cool the drum and the charge corona unit to prevent uneven build-up of negative ions that can cause uneven drum surface charge. The exhaust fan [B] located above the fusing unit causes air to flow out of the machine.

An ozone filter [C] absorbs the ozone around the drum.

To keep the temperature inside the machine constant, the drum cooling fan and the exhaust fan turn slowly during stand-by, and turn quickly during copying.

To prevent foreign matter from entering the copier inside, there is a dust protection filter in the entrance [D] of the duct. Another dust filter [E] prevents dust from reaching the ozone filter.

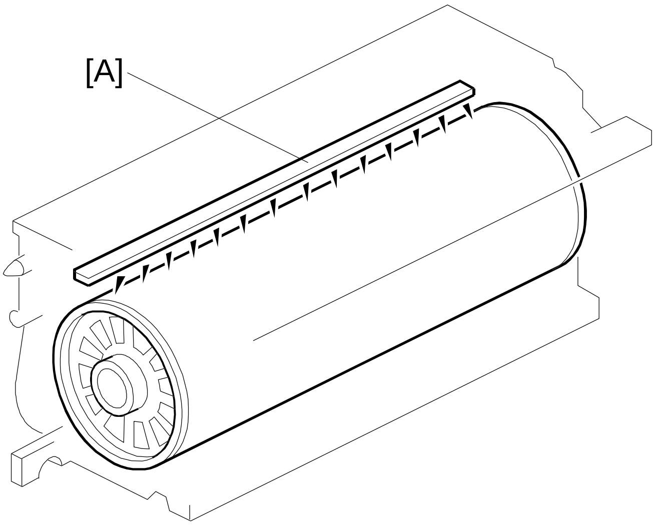
Pick-off Pawls



A294D559.WMF

The pick-off pawls always contact the drum surface as a result of weak spring pressure. They move from side to side during the copy cycle to prevent drum wear at any particular location. This movement is made via a shaft [A] and a cam [B].

Quenching



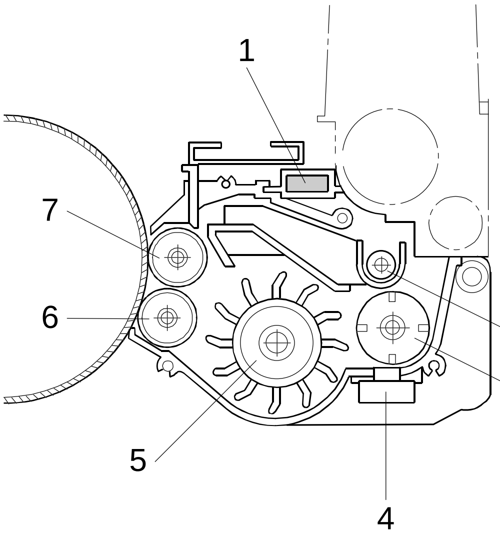
A294D209.WMF

In preparation for the next copy cycle, light from the quenching lamp [A] neutralizes any charge remaining on the drum.

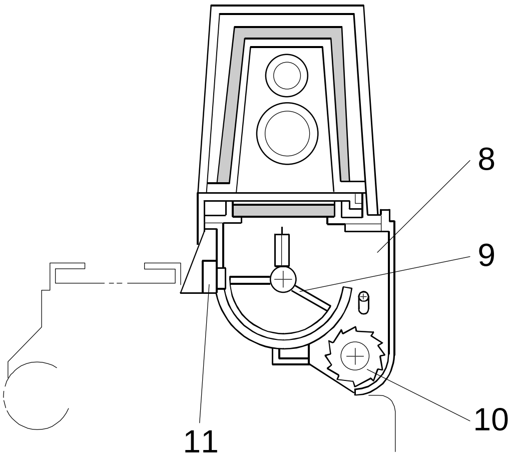
The quenching lamp consists of a line of 16 red LEDs extending across the full width of the drum.

2.6 DEVELOPMENT

2.6.1 OVERVIEW



A294D301.WMF



A294D302.WMF

1. Development Filter
2. Toner Auger
3. Developer Agitator
4. Toner Density Sensor
5. Paddle Roller
6. Lower Development Roller
7. Upper Development Roller
8. Toner Hopper
9. Toner Agitator
10. Toner Supply Roller
11. Toner Hopper Sensor

This copier uses a double roller development (DRD) system. Each roller has a diameter of 20 mm.

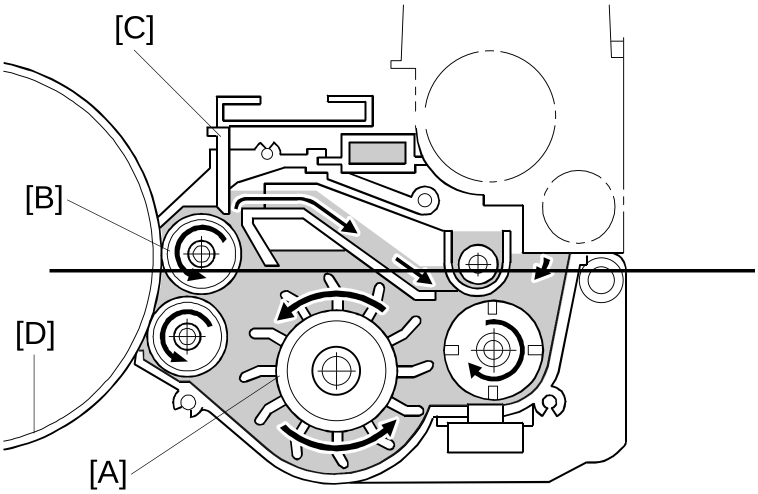
This system differs from single roller development systems in that:

- It develops the image in a narrower area
- It develops the image twice
- The relative speed of each development roller against the drum is reduced.

The particle diamaters are about 9.5 µm for toner, and about 70 µm for developer. Both the DRD system and new consumables improve the image quality, especially of thin horizontal lines, the trailing edges of the half-tone areas, and black cross points.

The machine contains a toner recycling system. Toner recycled from the drum cleaning unit is transferred to the toner hopper with fresh toner, where they are mixed by the toner agitator. The mechanism is explained in the Toner Supply and Recycling section.

2.6.2 DEVELOPMENT MECHANISM



A294D303.WMF

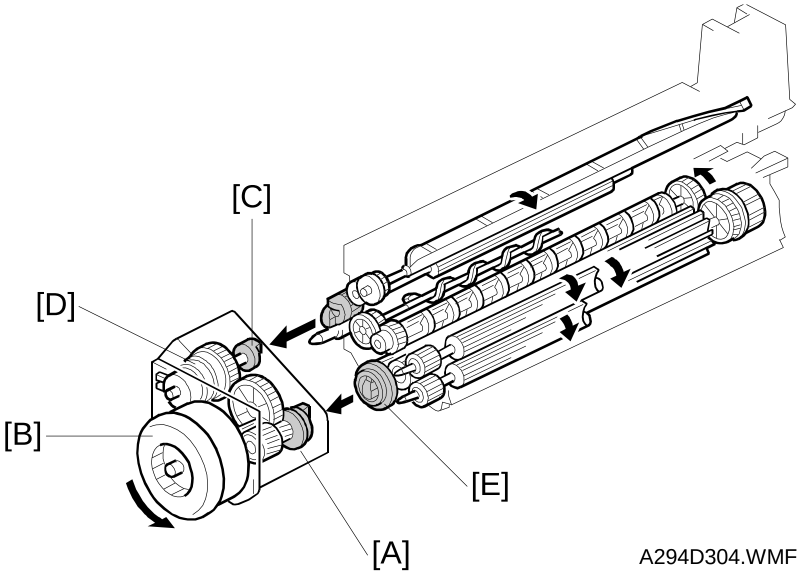
The paddle roller [A] picks up developer and transports it to the upper development roller [B]. Internal permanent magnets in the development rollers attract the developer to the development roller sleeve. The upper development roller carries the developer past the doctor blade [C]. The doctor blade trims the developer to the desired thickness and creates backspill to the cross mixing mechanism.

In this machine, black areas of the latent image are at a low negative charge (about –150 V) and white areas are at a high negative charge (about –950 V).

The development roller is given a negative bias to attract negatively charged toner to the black areas of the latent image on the drum.

The development rollers continue to turn, carrying the developer to the drum [D]. When the developer brush contacts the drum surface, the low-negatively charged areas of the drum surface attract and hold the negatively charged toner. In this way, the latent image is developed.

2.6.3 DRIVE

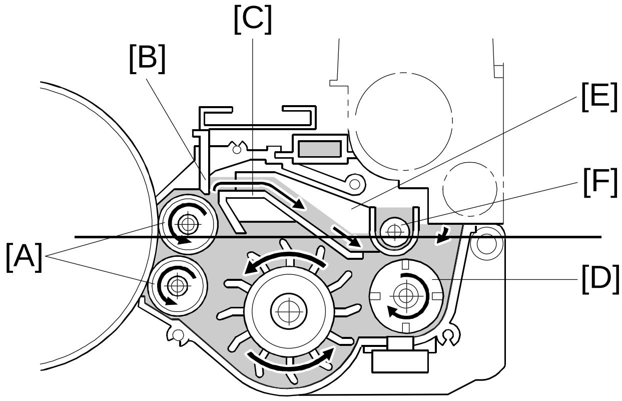


The gears in the development unit are driven by the development drive gear [A] when the development motor [B] (a dc servomotor) turns.

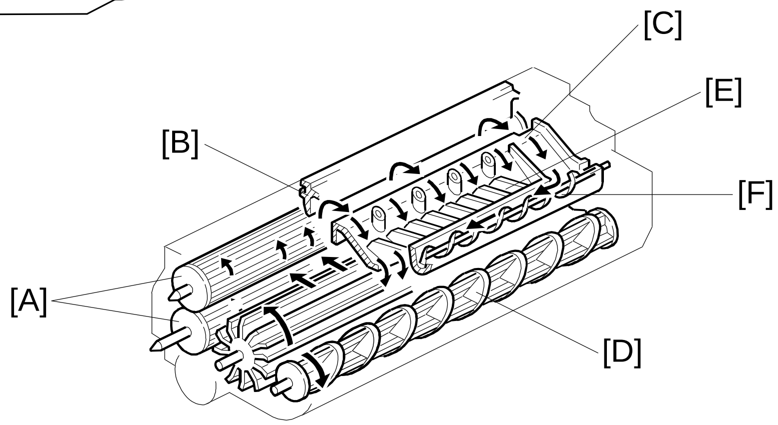
The gears in the toner hopper are driven by the toner supply roller drive gear [C] when the toner supply roller clutch [D] activates.

The above gears are helical gears. Helical gears are more quiet than normal gears. The teeth of the development drive gear are chamfered so that they smoothly engage the development roller gear [E] when the unit is installed.

2.6.4 CROSSMIXING



A294D303.WMF



A294D571.WMF

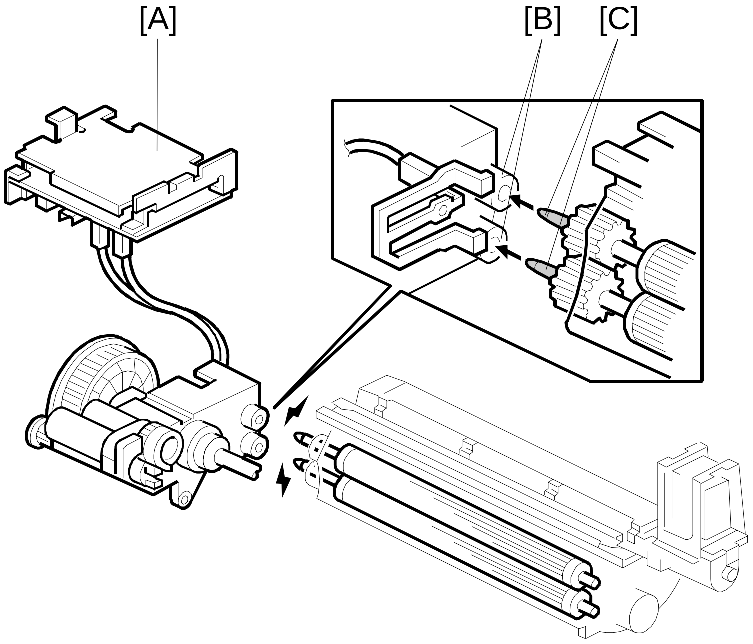
This copier uses a standard cross-mixing mechanism to keep the toner and developer evenly mixed. It also helps agitate the developer to prevent developer clumps from forming and helps create the triboelectric charge.

The developer on the turning development rollers [A] is split into two parts by the doctor blade [B]. The part that stays on the development rollers forms the magnetic brush and develops the latent image on the drum. The part that is trimmed off by the doctor blade goes to the backspill plate [C].

As the developer slides down the backspill plate to the agitator [D], the mixing vanes [E] move it slightly toward the rear of the unit. Part of the developer falls into the auger inlet and is transported to the front of the unit by the auger [F].

The agitator moves the developer slightly to the front as it turns, so the developer stays level in the development unit.

2.6.5 DEVELOPMENT BIAS



A294D305.WMF

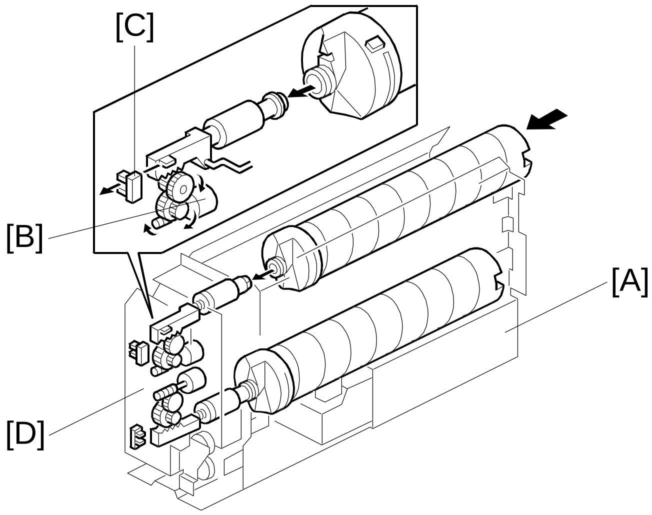
The charge/bias/grid power pack [A] applies the negative development bias to both the lower sleeve roller and upper sleeve roller through the receptacles [B] and the sleeve roller shafts [C].

The development bias prevents toner from being attracted to the non-image areas on the drum where there is residual voltage. In addition, the development bias changes with the image density setting chosen by the customer.

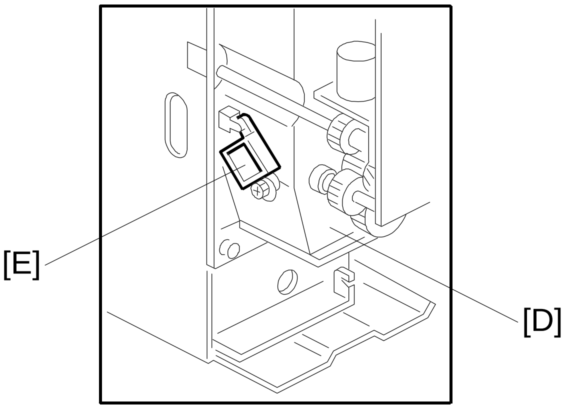
2.7 TONER SUPPLY AND RECYCLING

2.7.1 TONER BANK

Overview



A294D901.WMF



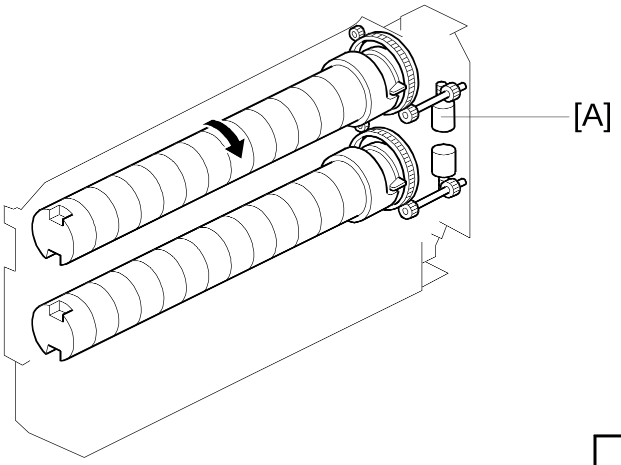
A294D909.WMF

Toner is supplied from a toner bank unit, which is in a different part of the machine from the development unit.

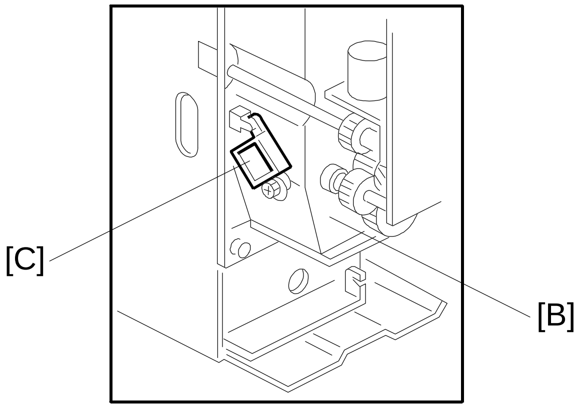
The toner bank [A] holds two toner bottles. The machine works even if there is only one bottle installed. Toner can be supplied from either the upper or lower toner bottle (not from both at the same time). When the upper toner bottle is supplying toner, the upper bottle cap motor [B] pulls out the toner bottle cap. The upper bottle inner cap sensor [C] detects the actuator in the toner bottle opening rod.

Toner is supplied from the toner bottle to the toner entrance tank [D]. The toner near end sensor [E] (at the rear right of the toner bank unit) checks for the presence of toner in the toner entrance tank.

Toner Near-end and End Detection/Bottle Replacement



A294D911.WMF



A294D909.WMF

An empty toner bottle can be replaced during printing.

The toner near-end sensor detects toner as it falls from the toner bottle into the toner entrance tank [B]. If the toner near end sensor [C] detects that no toner has come out of the toner bottle, the toner bottle enters the toner near-end condition.

The toner bottle motor [A] then rotates the toner bottle up to 15 times to try to supply toner to the toner entrance tank [B]. If the sensor detects toner more than 5 times, the near-end condition is cleared. However, if the toner near end sensor [C] fails to detect toner 10 consecutive times, 200 more copies can be made from that bottle, then the machine declares it to be empty.

When the bottle is empty, the machine switches to the second toner bottle. The first toner bottle cap motor closes the bottle cap and the second toner bottle cap motor pulls out the second bottle cap. The motors operate until the first bottle inner cap sensor does not detect the actuator and the second bottle inner cap sensor does detect the actuator.

The second toner bottle is then rotated up to 15 times. If the near-end sensor detects toner after 5 times, the machine can print from that bottle.

Meanwhile, the machine indicates that the first bottle is empty. When the user takes out the old bottle, and puts in a new one, this is detected by the toner bottle sensor (see the next page for more about the toner bottle sensors). However, this bottle is not tested until the second bottle is empty.

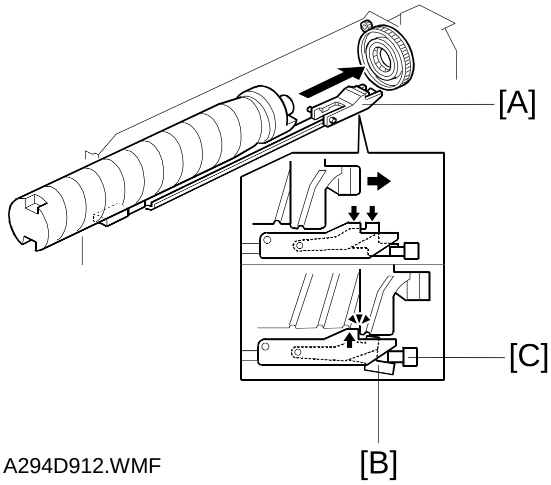
NOTE: If an empty bottle is not replaced, and the other bottle becomes empty (no toner detected 10 consecutive times, as described above), 200 more copies can be made. Then the machine enters the ‘system toner end condition’ (both bottles are empty), and this is indicated in the operation panel display.

When the second bottle is empty, the machine switches back to the first bottle.

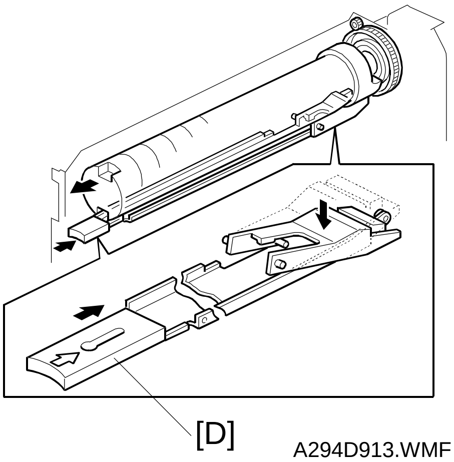
The first bottle is tested now, by rotating it 15 times as usual. If this bottle is also found to be empty, the machine enters the system toner end condition. This time, the machine cannot print until one of the toner bottle sensors detects that a new toner bottle has been inserted (the machine does not allow the 200 extra copies).

When both bottles are empty and a new toner bottle is placed in the toner bank, the new toner bottle is rotated 15 times to supply toner to the toner entrance tank. If the toner near end sensor then detects toner in the toner entrance tank, the system toner end condition is cleared. If the toner near end sensor detects there is still no toner in the toner entrance tank, the bottle cap motor closes the toner bottle cap. The system toner end condition continues and printing is not possible.

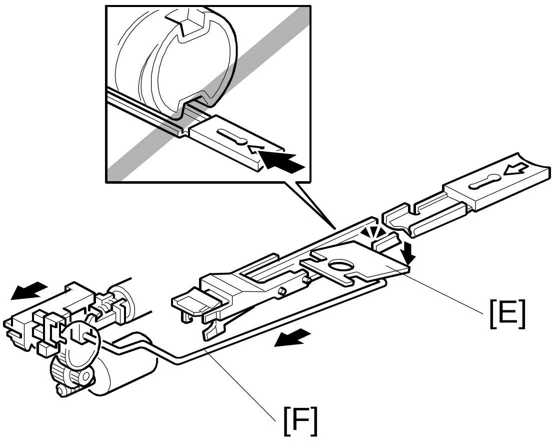
Toner Bottle Sensors



A294D912.WMF



A294D913.WMF

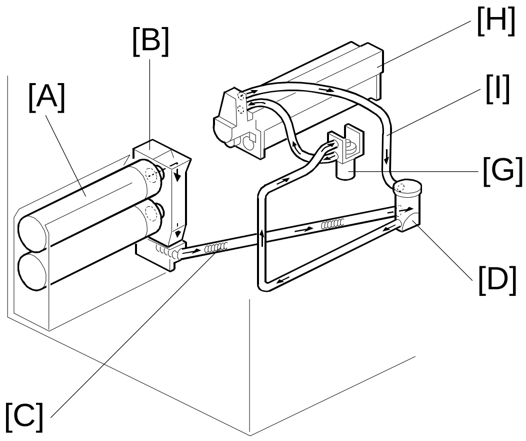


A294D914.WMF

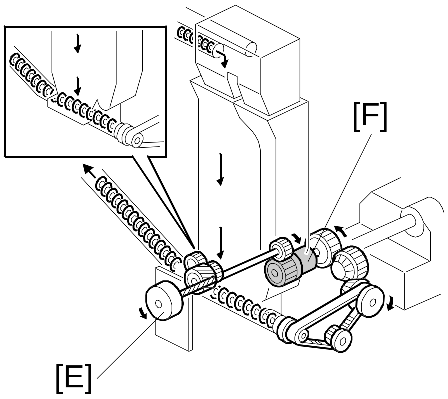
When placing a toner bottle in the toner bank, the toner bottle pushes the lock arm [A] downwards. Then the lock arm catches the toner bottle. Also, lever [B] is pushed down, which causes the toner bottle sensor [C] to detect that a bottle has been installed (the actuator leaves the toner bottle sensor while the bottle is being inserted in the holder).

When replacing a toner bottle, push the toner bottle release lever [D] to release the lock mechanism. When a toner bottle is being used to supply toner, the toner bottle opening rod is pulled to the rear and the lock plate [E] is lowered by the link [F] so that the toner bottle release lever cannot be pushed. Therefore, the toner bottle that is supplying toner is locked in place. The user cannot pull out the bottle until it is empty.

2.7.2 SUPPLYING TONER TO THE DEVELOPMENT UNIT



A294D902.WMF



A294D906.WMF

The toner bottle motor turns the toner bottle, causing toner to leave the toner bottle [A] and drop into the toner entrance tank [B]. Recycled toner in the tube from the drum cleaning unit also enters the toner entrance tank, and is mixed with fresh toner from the toner bottle.

The toner transport coil [C] in the toner transport tube transports toner to the toner supply cylinder [D]. The toner bank motor [E] drives the toner transport coil via the toner supply coil clutch [F].

The toner supply motor [G] pushes air toward the toner hopper. Toner in the toner supply cylinder is transported from the toner supply cylinder to the toner hopper [H]. The toner hopper has two air pressure release filters and an air return tube [I] connected to the toner supply cylinder. Air returns to the toner supply cylinder from the toner hopper.

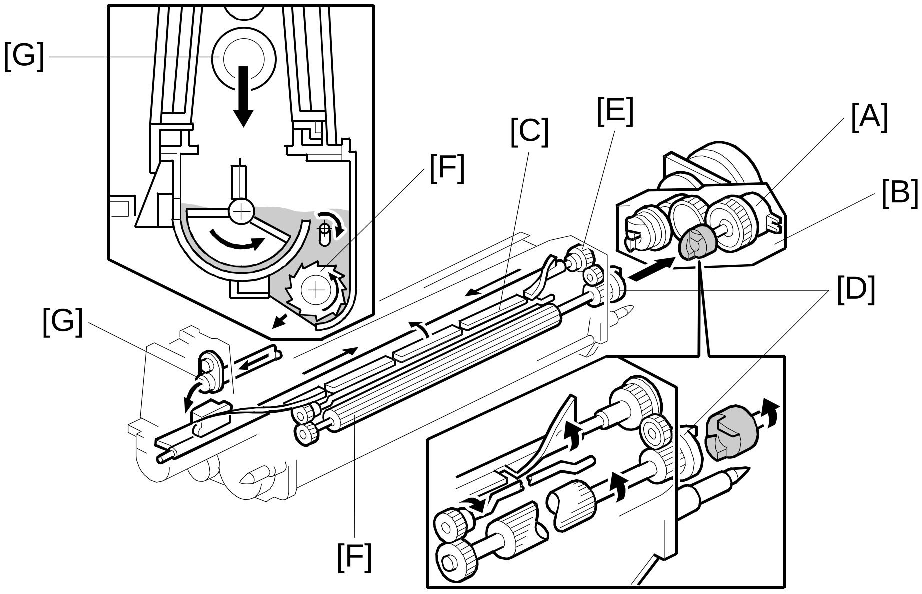
If the toner hopper sensor (in the toner hopper – see ‘Toner Hopper’) detects that there is insufficient toner in the hopper, the toner bank mechanism is started up. If there is toner in the toner entrance tank (detected by the toner near end sensor in the toner bank), the toner supply coil clutch turns on for 2 seconds. The toner supply motor turns on for 7 seconds at the same time as the toner supply coil clutch. After this, if the toner hopper sensor still does not detect toner, the toner supply coil clutch turns on for two seconds again until the toner hopper sensor detects toner (this is done for a maximum of 10 times). When the toner hopper sensor detects toner, the toner supply motor turns off 1 second after the toner supply coil clutch turns off.

If the toner hopper sensor does not detect toner in the toner hopper after the toner supply coil clutch has turned on ten times, the operation panel indicates SC495 (toner bank error).

The toner supply motor sensor monitors the toner supply motor. If the sensor detects that the motor does not rotate during the toner supply process, the operation panel indicates SC591 (toner supply motor lock).

2.7.3 TONER HOPPER

Toner Supply



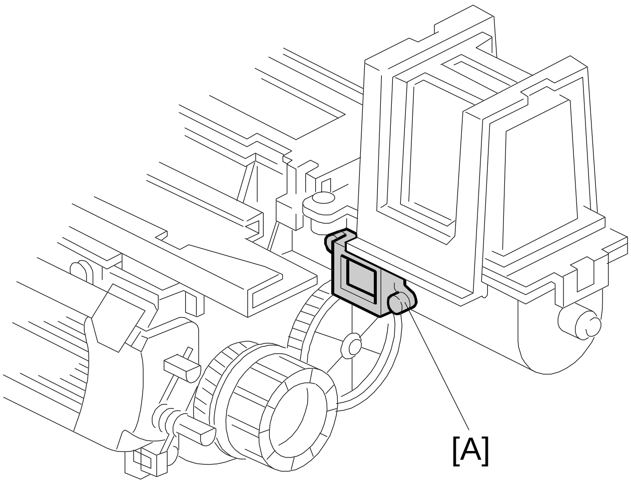
A294D306.WMF

When the toner supply roller clutch [A] (inside the development motor unit [B]) turns on, the agitator [C] mixes the toner transported by the air tube [G] from the toner bank (the toner from the toner bank is new toner mixed with recycled toner). Then it moves the toner from front to rear and sends it to the toner supply roller. Toner is caught in the grooves in the toner supply roller [F]. Then, as the grooves turn past the opening, the toner falls into the development unit.

The toner supply roller clutch [A] transfers drive from the development motor to the toner supply roller gear [D], which drives the agitator gear [E].

For details about Toner Supply Control, see Drum Unit – Toner Supply Control.

Toner Hopper Empty Detection

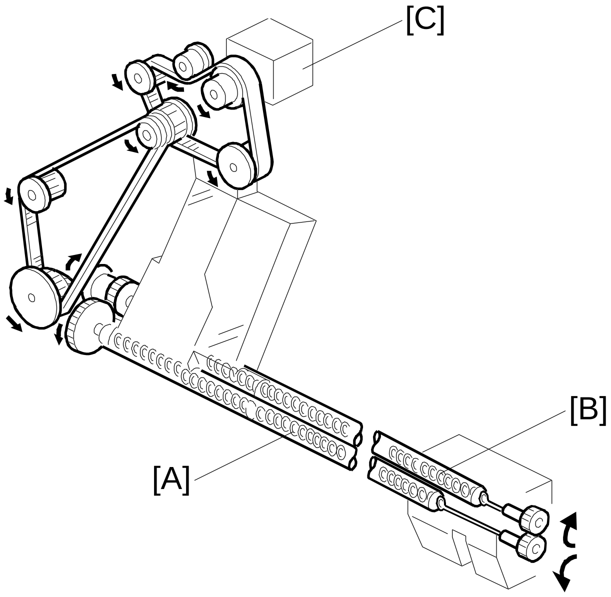


A294D307.WMF

The toner hopper sensor [A] detects whether there is enough toner in the toner hopper. The toner hopper sensor checks for toner once when the toner supply roller clutch turns on. When there is only a small amount of toner inside the toner hopper and pressure on the toner hopper sensor becomes low, the toner hopper sensor outputs a pulse signal (once per copy). Then the toner bank mechanism supplies more toner to the toner hopper, as explained in previous sections.

2.7.4 TONER RECYCLING AND WASTE TONER COLLECTION

Overview



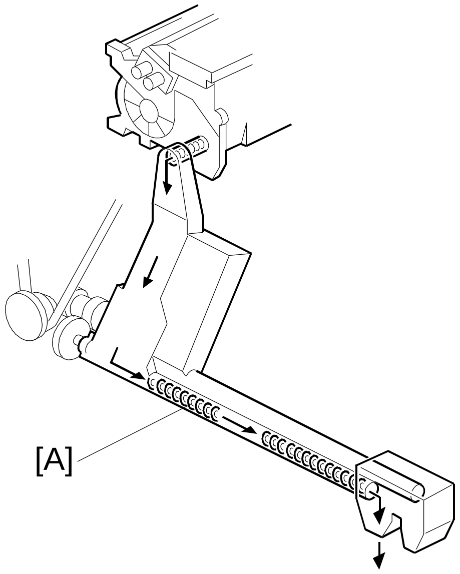
A294D903.WMF

Recycling: The toner recycling coil in the tube [A] transports the toner collected by the drum cleaning to the toner entrance tank for recycling.

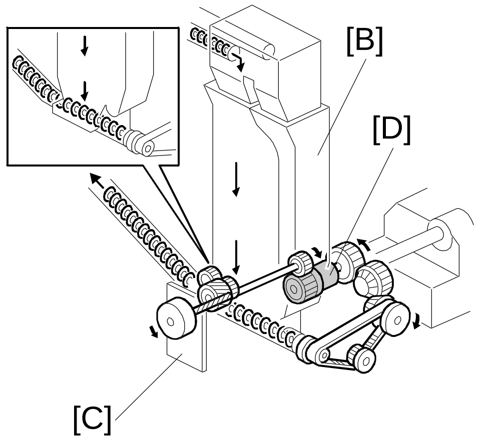
Waste toner collection: The toner collection coil in the tube [B] transports the toner collected by the transfer belt unit to the waste toner collection bottle.

The drum motor [C] drives the toner recycling coil [A] via timing belts and gears, whose rotation in return drives the toner collection coil [B] via gears.

Toner Recycling



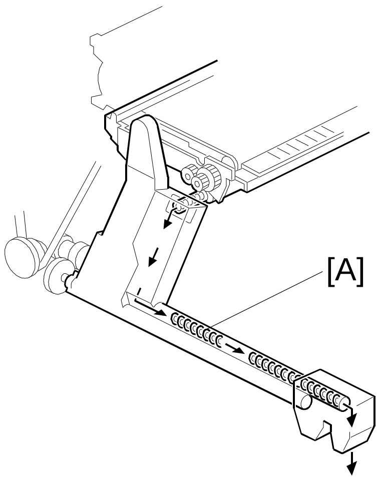
A294D904.WMF



A294D906.WMF

The toner recycling coil in the tube [A] transports the toner collected by the drum cleaning unit to the toner entrance tank [B] for recycling. This toner is dropped into the toner entrance tank and mixed with fresh toner from the toner bottle. The toner bank motor [C] drives the toner transport coil via the toner supply coil clutch [D].

Waste Toner Collection



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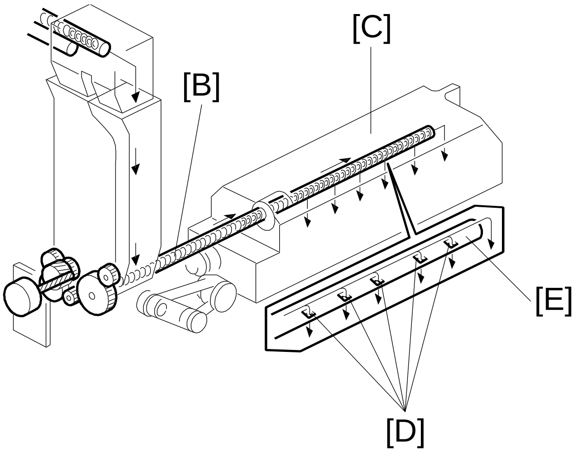
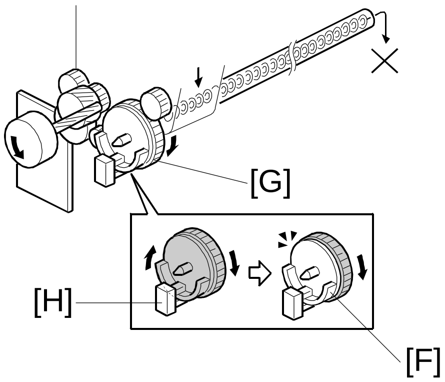


A294D908.WMF



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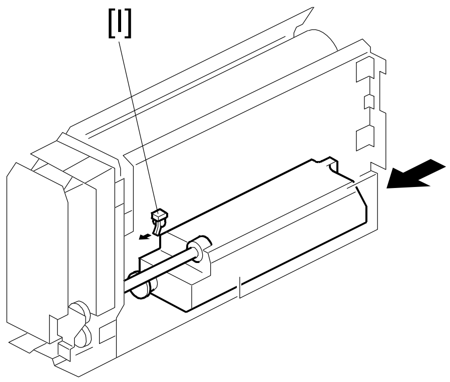


A294D910.WMF

The toner collection coil in the tube [A] transports the toner collected by the transfer belt unit to the waste toner collection bottle. This toner contains paper dust and cannot be recycled.

The waste toner coil [B] transports the waste toner dropped from the toner collection coil tube to the waste toner collection bottle [C]. The waste toner coil tube has five holes [D] and the end [E] of the tube is open. The waste toner drops from these holes.

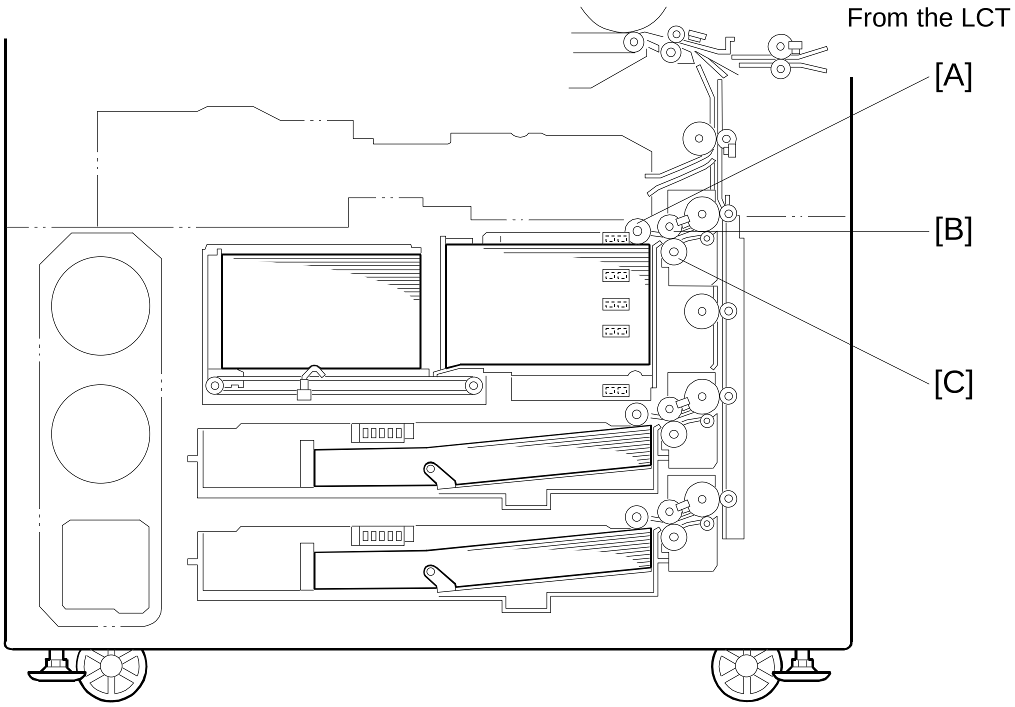
When the waste toner collection bottle fills up, the pressure in the bottle increases and the waste toner coil becomes harder to turn. Then, the actuator plate [F] does not rotate because the waste toner coil drive gear [G] has a torque limiter, and the output of the toner overflow sensor [H] becomes constant. In this condition, the operation panel LCD indicates “Waste Toner Full” and printing is disabled.

The bottle contains 1,000 g to 1,200 g of waste toner. The amount of waste toner from the transfer belt unit is around 3 g per 10 k copies. Three to four million copies (3,000 to 4,000 k) can be made before the waste toner bottle becomes full.

If the waste toner bottle is not properly placed inside the toner bank, the operation panel LCD indicates SC496 (toner collection bottle error). The toner collection bottle sensor [I] detects this condition.

2.8 PAPER FEED

2.8.1 OVERVIEW



A294D701.WMF

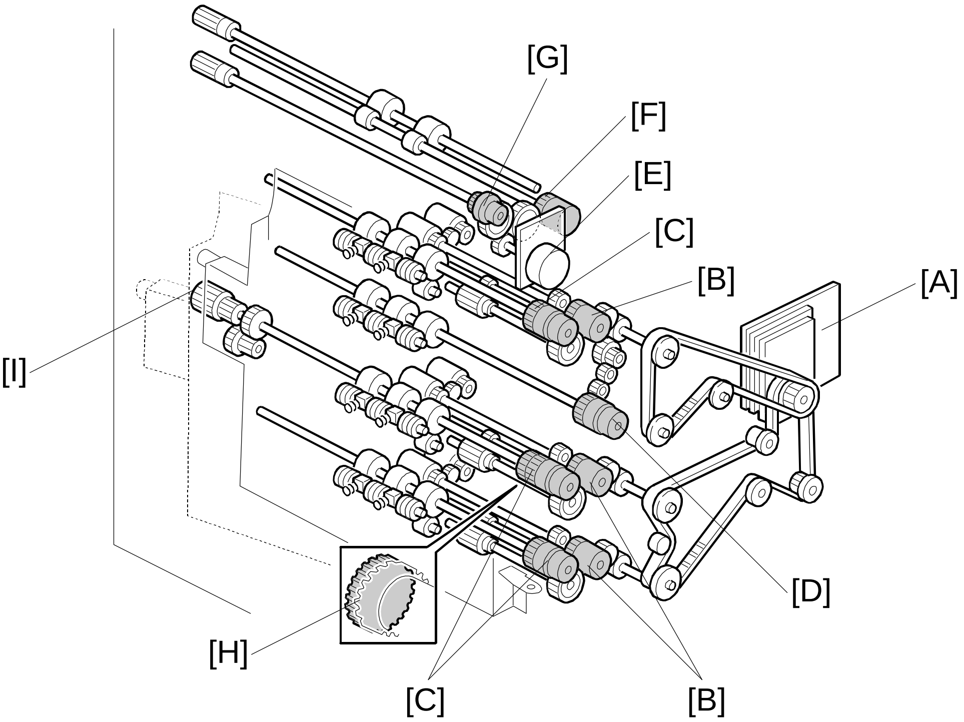
This model has three paper tray feed stations.

The 1st tray is the tandem feed tray. It can hold 2,000 sheets of paper (1,000 sheets x 2 stacks). It can be converted to a 1,000-sheet tray for larger paper sizes with an optional kit.

The 2nd and 3rd trays are universal trays. They can each hold 500 sheets of paper.

All feed stations use an FRR feed system. Rotation of the pick-up roller [A] drives the top sheet of paper to the feed [B] and separation [C] rollers. These rollers then take over the paper drive. If the pick-up roller feeds more than one sheet, the separation rollers rotate in the opposite direction and prevent all but the top sheet from passing through to the registration rollers.

2.8.2 DRIVE



A294D709.WMF

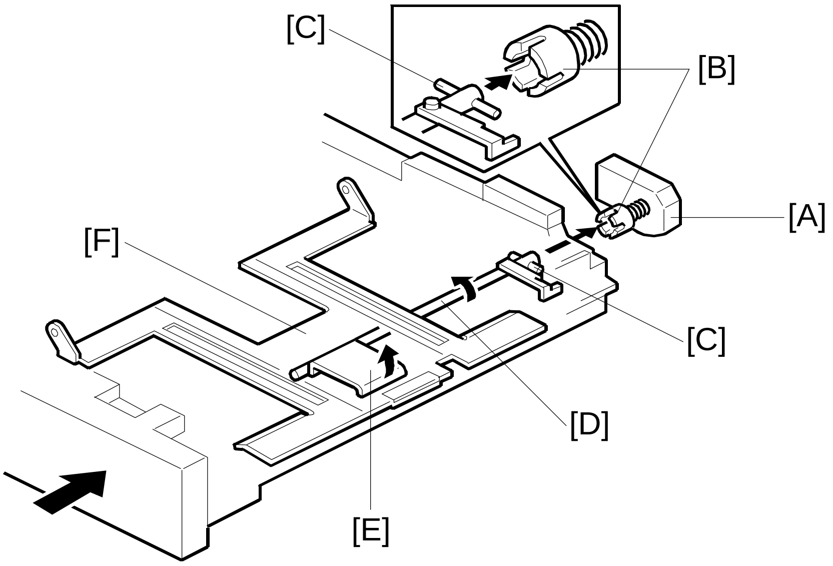
[A]: Paper Feed Motor
[B]: Paper Feed Clutches 1 to 3
[C]: Vertical Transport Clutches 1 to 3
[D]: Lower Relay Clutch
[E]: Relay Motor
[F]: Upper Relay Clutch
[G]: LCT Relay Clutch

The paper feed motor [A] drives feed, pick-up, and separation rollers in trays 1, 2, and 3 via timing belts, clutches [B], and gears. The paper feed motor also drives the vertical transport rollers and the lower relay roller. Drive is transferred to each of the three vertical transport rollers by a vertical transport clutch [C], and to the lower relay roller by the lower relay clutch [D].

The relay motor [E] drives the upper relay roller and LCT relay roller via gears and clutches [F] and [G].

The 2nd vertical transport clutch has a one-way-gear [H]. This prevents the clutch from slipping when the knob [I] is turned to remove jammed paper in the paper feed tray and vertical transport area.

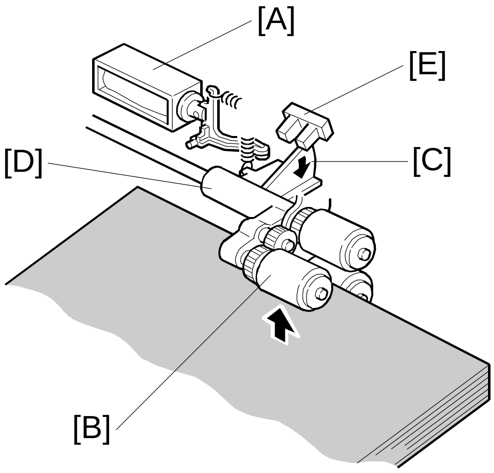
2.8.3 PAPER LIFT – TRAYS 2 & 3



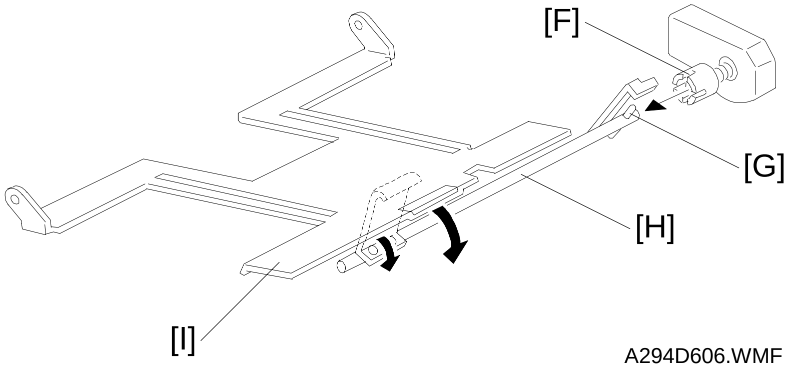
A294D604.WMF

The machine detects when a tray has been placed in the machine by a signal from the paper size switch. When this is detected, the lift motor [A] turns on. The coupling gear [B] on the tray lift motor engages the pin [C] on the lift arm shaft [D], then it turns the tray lift arm [E] to lift the tray bottom plate [F].

For tray 1, an electrical signal from the tray connector automatically informs the cpu when the tray has been placed in the machine.



A294D605.WMF



A294D606.WMF

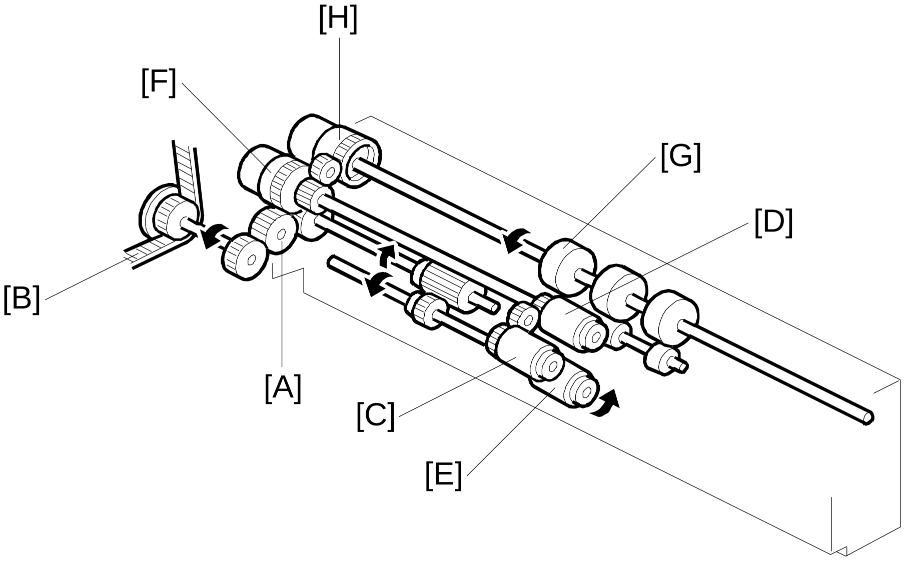
When the lift motor turns on, the pick-up solenoid [A] activates to lower the pick-up roller [B]. When the top sheet of paper reaches the correct height for paper feed, the paper pushes up the pick-up roller, and the actuator [C] on the pick-up roller supporter [D] leaves the lift sensor [E]. Then, the lift motor stops.

After several paper feeds, the paper level gradually lowers and the lift sensor is de-activated. Then the lift motor turns on again until the lift sensor detects the actuator again.

When the tray is drawn out of the feed unit, the lift motor coupling gear [F] disengages the pin [G] of the lift arm shaft [H], then the tray bottom plate [I] drops under its own weight.

2.8.4 PICK-UP AND FEED – TRAYS 1 TO 3

Overview



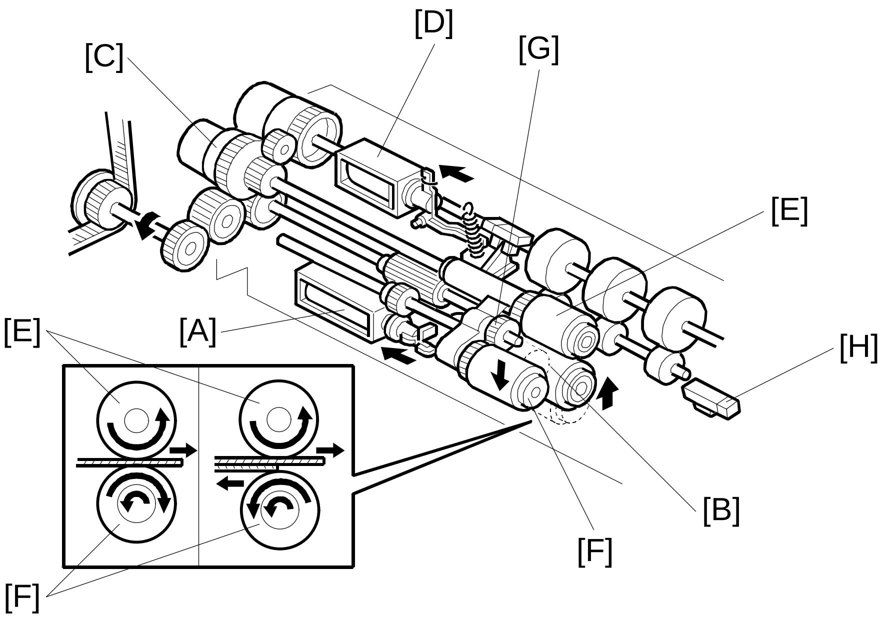
A294D598.WMF

Drive from the paper feed motor is transmitted to the gear [A] in the paper feed unit via the timing belt [B].

Then the gear [A] transmits this drive to the pick-up [C], paper feed [D] and separation [E] rollers via gears and the paper feed clutch [F].

The gear [A] also transmits this drive to the vertical transport roller [G] via gears and the vertical transport clutch [H].

Pick-up and Feed



A294D600.WMF

If a paper feed station is not selected, its separation roller solenoid [A] de-activates and the separation roller [B] can turn freely in the opposite direction to paper feed.

When the paper feed station is selected and the start key is pressed, the feed clutch [C], separation roller solenoid [A], and the pick-up solenoid [D] all turn on.

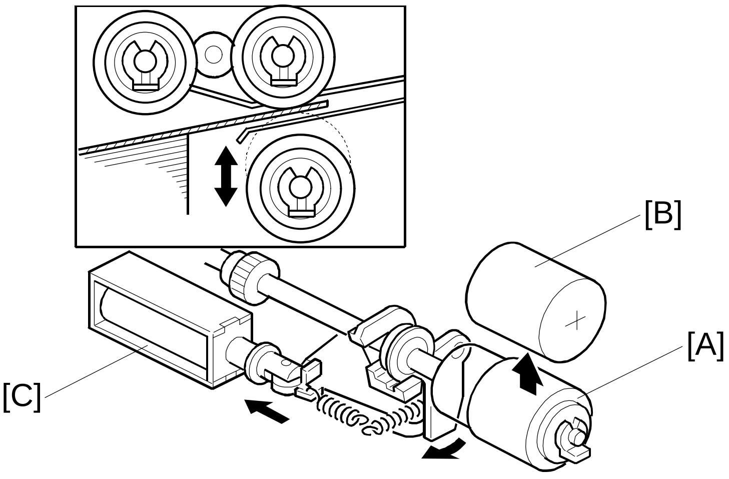
When the feed clutch [C] activates to transfer drive to the feed roller [E], the pick-up roller [F] also turns because it is linked to the feed roller by an idle gear [G].

When the separation roller solenoid [A] turns on, the separation roller [B] contacts the paper feed roller [E] and turns with the feed roller in spite of the torque limiter in the separation roller, which forces it in the opposite direction.

When the pick-up solenoid [D] activates, the pick-up roller [F] lowers to contact the top sheet of the paper stack and send it to the paper feed and separation rollers.

When the paper feed sensor [H] detects the leading edge of the paper, the pick-up solenoid de-energizes to lift the pick-up roller [F], and the vertical transport clutch [I] energizes to feed the paper to the vertical paper feed section.

Separation Roller Release



A294D602.WMF

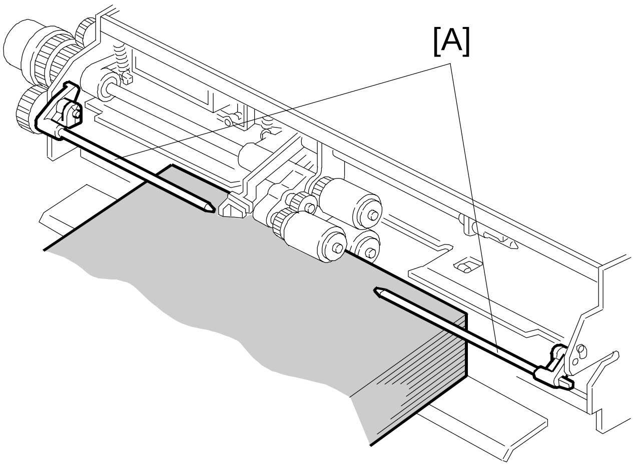
The separation roller [A] is normally away from the feed roller [B]. When the paper feed station is selected, the separation roller solenoid [C] contacts the separation roller with the feed roller as explained on the previous two pages.

This contact/release mechanism has the following three advantages:

1. When the paper feed motor turns on, all the separation rollers in the three feed stations rotate. If the separation roller is away from the feed roller, it reduces the load on the paper feed motor and drive mechanism, and it also reduces wear to the rubber surface of the separation roller caused by friction between the separation roller and the feed roller.
2. After paper feed is completed, paper sometimes remains between the feed and separation rollers. If the feed tray is pulled out in this condition, this paper might be torn. When the separation roller is away from the feed roller, the remaining paper can be removed from between the rollers.
3. When paper misfeeds occur around this area, the user can easily pull out the jammed paper between the feed and the separation rollers if the separation roller is away from the feed roller.

After paper feed and the paper feed clutch tuns off, the paper feed motor still turns the separation roller [A] in reverse. The separation roller, still contacting the feed roller, turns the feed roller in reverse for 100 ms. Then the separation solenoid turns off.

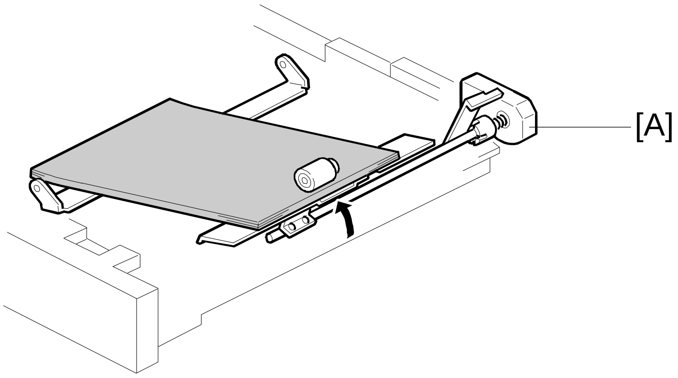
Paper Skew Prevention



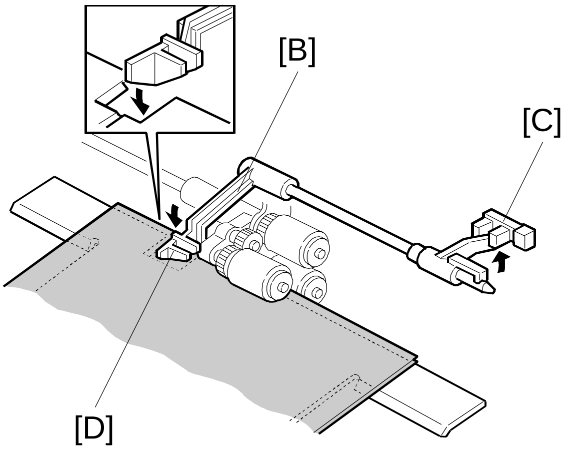
A294D603.WMF

The paper press arms [A] on each side press down both sides of the paper, especially if the paper is curled. This helps to prevent paper skew or jams.

2.8.5 REMAINING PAPER/PAPER END DETECTION – TRAYS 2 & 3



A294D607.WMF



A294D608.WMF

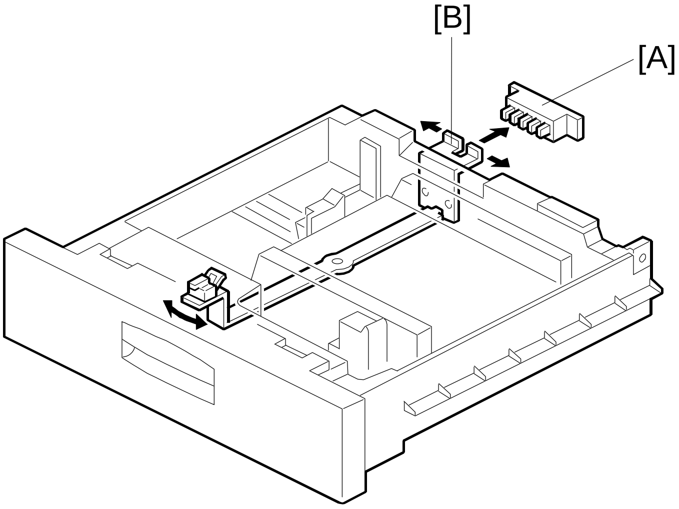
Remaining Paper Detection

The lift motor [A] rotates when the tray is pushed in. The machine's CPU detects the remaining paper by monitoring the lift motor rotation angle (4 levels).

End Detection

If there is paper in the tray, the paper stack lifts the paper end feeler [B] and the paper end sensor [C] is deactivated. When the paper tray runs out of paper, the paper end feeler drops into the cutout [D] in the tray bottom plate and the paper end sensor is activated.

2.8.6 PAPER SIZE DETECTION – TRAYS 2 & 3



A294D712.WMF

Paper Size Switch	Paper Size	
	A4/A3 Version	**LT/DLT Version**
00111	A3-L	11" x 17"-L
00011	8 1/4" x 13"	8 1/2" x 14"-L
10011	A4-L	8 1/2" x 11"-L
01001	A4-S	8 1/2" x 11"-S
00100	8 1/2" x 13"	5 1/2" x 8 1/2"-S
00010	—	8" x 10"-S
00001	A5-S	8" x 10"-L
10000	8 k-L (Taiwan version only)	8" x 13"-L
11000	16 k-L (Taiwan version only)	10" x 14"-L
11100	16 k-S (Taiwan version only)	11" x 15"-L
11110	✻	✻

Actuated - 0 De-actuated - 1 L: Lengthwise S: Sideways

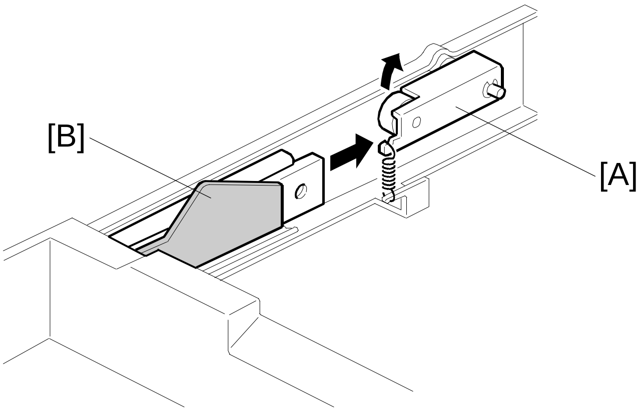
For the 1st feed tray, the paper size has to be stored with SP5-019-001.

For the 2nd and 3rd feed tray (universal trays), the paper size switch [A] detects the paper size. The paper size switch contains five microswitches. The paper size switch is actuated by an actuator plate [B] at the rear of the tray. Each paper size has its own unique combination as shown in the table and the CPU determines the paper size by the combination.

Using the asterisk setting (✻), a wider range of paper sizes can be used, but the size has to be entered with a UP mode.

	Metric version	Inch version
Main Scan Direction	148 mm ~ 297 mm	5.9" ~ 11.8"
Sub Scan Direction	210 mm ~ 432 mm	8.3" ~ 17.0"

2.8.7 TRAY LOCK – TRAYS 2 & 3

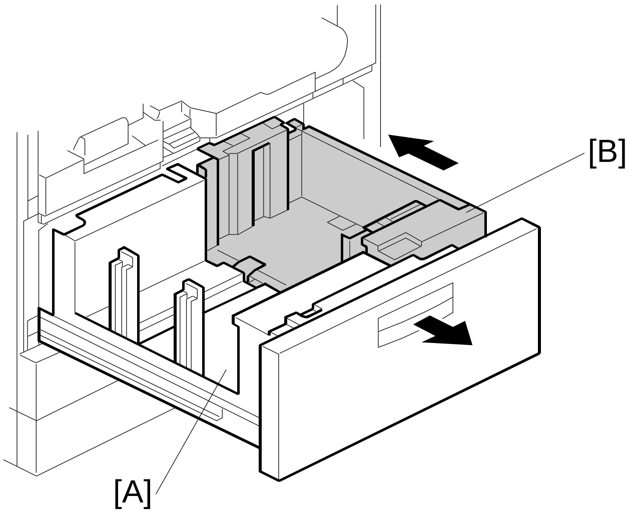


A294D618.WMF

When the tray is placed in the paper feed unit, the lock lever [A] drops behind the lock plate [B] on the support bracket to lock the tray in the proper position.

2.8.8 TANDEM FEED – TRAY 1

Overview

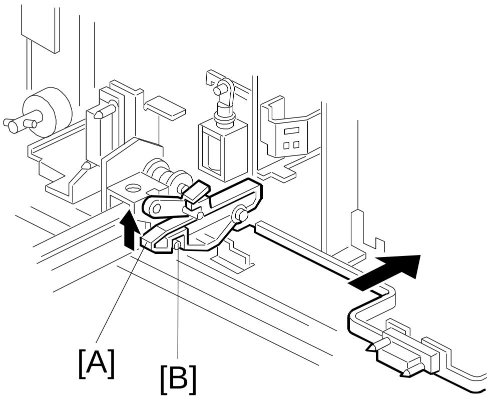


A294D601.WMF

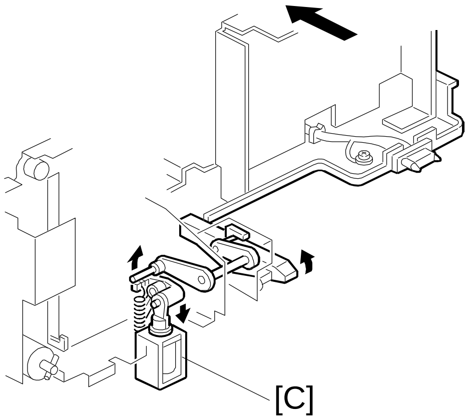
1,000 sheets of paper can be set in each of the left [A] and right trays [B]. Paper is fed from the right tray. When the paper in the right tray runs out, the paper in the left tray automatically transfers to the right tray. After the paper transfer to the right tray, paper feeding resumes.

Normally both the right and the left trays are joined together. However, during copying, if there is no paper in the left tray, the left tray can be pulled out to load paper. During that time, the right tray stays in the machine and paper feed continues.

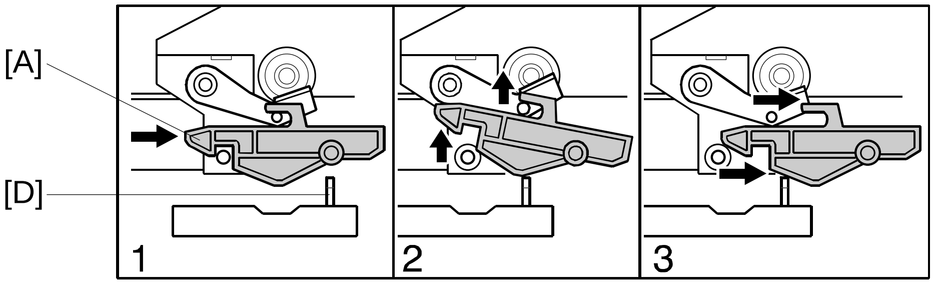
Connecting the Left and Right Sides of the Tray



A294D703.WMF



A294D704.WMF



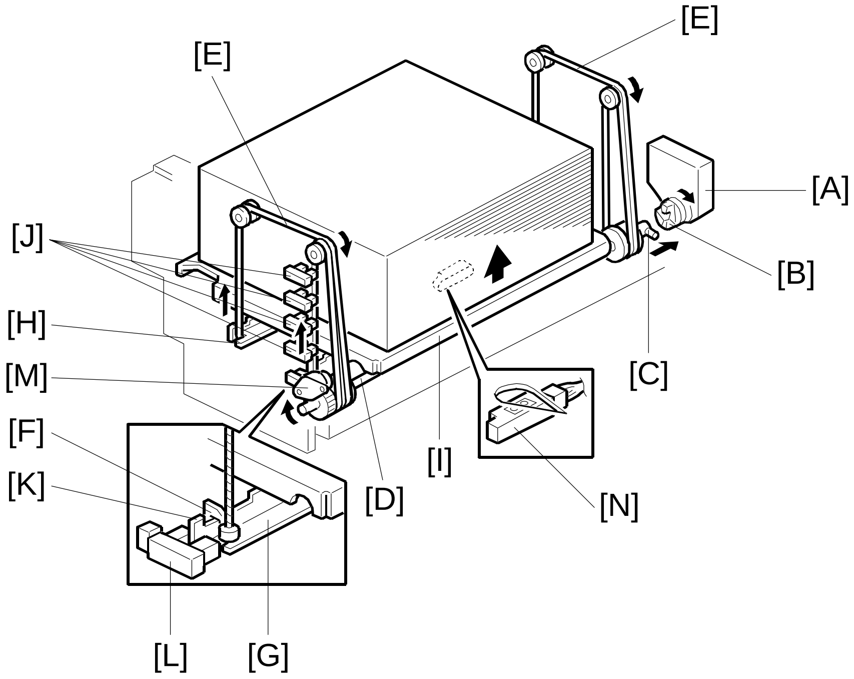
A294D654.WMF

Normally the left tray lock lever [A] in the left tray catches the pin [B] in the right tandem tray. During copying, if there is no paper in the left tray, the tandem tray connect solenoid [C] turns on to release the tray lock lever so that the left tray separates from the right tray. Therefore, the left tray can be pulled out to load paper while paper is still being fed into the machine from the right tray.

When the tandem tray is drawn out fully, the projection [D] pushes up the left tray lock lever [A] so that both trays separate for easier paper loading.

Paper Lift/Remaining Paper Detection

The machine detects when the 1st tray has been placed in the machine by monitoring the tray set signal through the connector.



A294D710.WMF

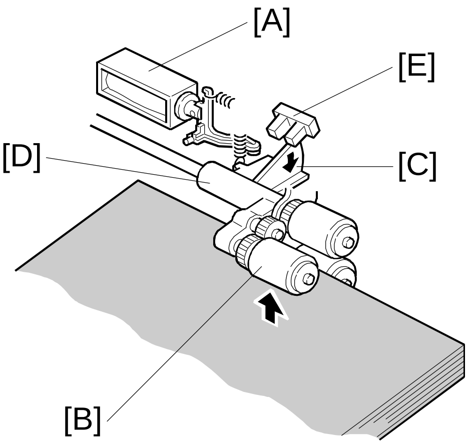
When the machine detects that the 1st paper tray is set in the machine, the right 1st tray paper sensor [N] (under the tray) checks whether there is paper in the right tandem tray.

NOTE: The right half of the tray holds up to 1,000 sheets. So, if the right 1st tray paper sensor was not present and the tray was empty, the bottom plate would have to lift up fully until the paper end sensor at the top of the tray detected that there was no paper, and this would waste several seconds.

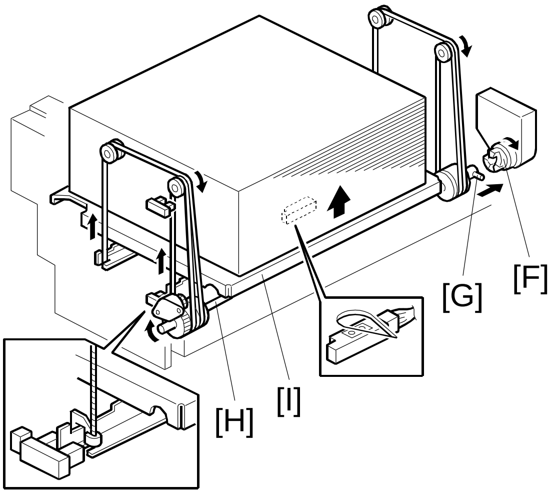
If paper is detected, the lift motor [A] rotates and the coupling gear [B] on the tray lift motor engages the pin [C] of the lift shaft [D]. The tray wires [E] are fixed in the slots [F] at the ends of the tray support rods [G, H]. When the lift motor rotates clockwise, the tray support rods and the tray bottom plate [I] move upward. The tray goes up until the top paper pushes up the pick-up roller and the lift sensor in the 1st feed unit is activated, and the paper end sensor at the top of the tray is deactivated.

When the actuator [K] on the front end of the right support rod [G] activates the paper height sensors [J], the remaining paper capacity is detected (4 levels).

When removing the tray, the coupling gear [B] separates from the pin [C], so that the tray bottom plate moves downward. The tray lowers until the actuator activates the tray down sensor [L]. The damper [M] lets the tray bottom plate drop down slowly.



A294D097.WMF



A294D098.WMF

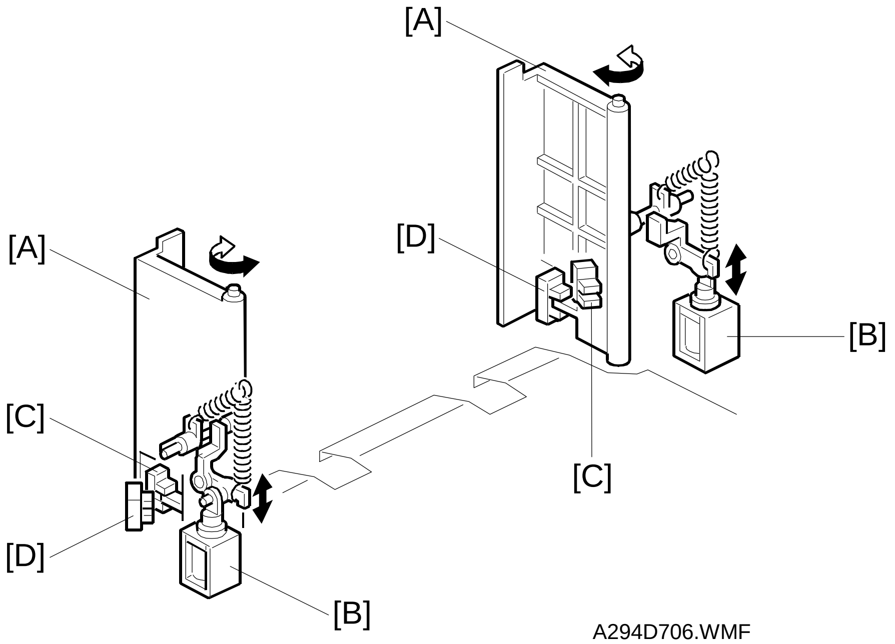
When the lift motor turns on, the pick-up solenoid [A] activates to lower the pick-up roller [B]. When the top sheet of paper reaches the correct height for paper feed, the paper pushes up the pick-up roller and the actuator [C] on the pick-up roller supporter [D] activates the lift sensor [E] to stop the lift motor.

After several paper feeds, the paper level gradually lowers then the lift sensor is de-activated and the lift motor turns on again until the lift sensor is activated again.

When the tray is drawn out of the feed unit, the lift motor coupling gear [F] disengages the pin [G] of the lift shaft [H], then the tray bottom plate [I] drops (the damper slows the fall, as explained on the previous page).

There is also a paper end sensor for the 1st tray, which works in the same way as the sensor in the 2nd and 3rd trays.

Side Fence Drive

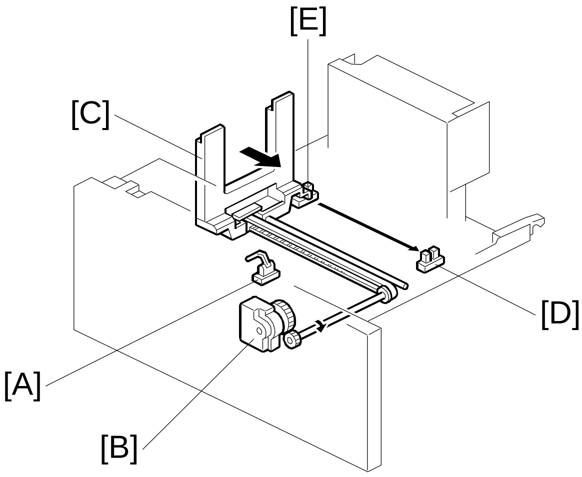


The side fences [A] of the right tray are normally closed. They open only when paper in the left tray is moving to the right tray.

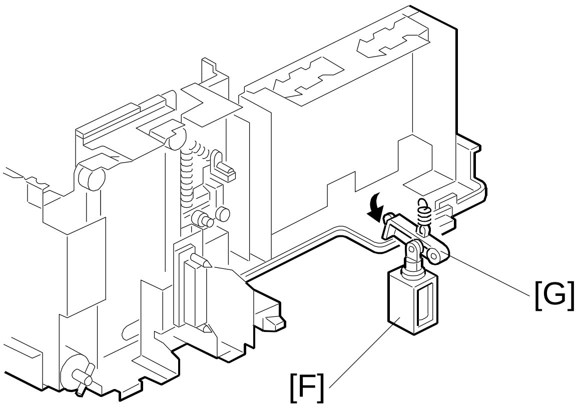
The side fence solenoids [B] drive the side fences. When the paper loaded in the left tray transfers to the right tray, the side fence solenoids turn on to open the side fences until the side fence open sensors [C] activate.

When the rear fence in the left tray has pushed the stack of paper into the right tray, the side fence solenoids turn off to close the side fences. Then, when the side fence closed sensors [D] actuate, the LCD displays a message advising the user to load some paper into the left side of the tandem tray.

Rear Fence Drive



A294D651.WMF



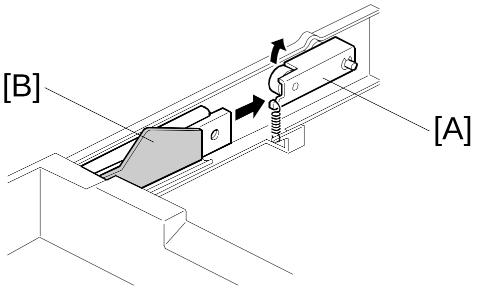
A294D705.WMF

When the left 1st tray paper sensor [A] detects paper but the right 1st tray paper sensor does not, the rear fence drive motor [B] (a DC motor) in the left tray turns counter-clockwise causing the rear fence [C] to push the paper stack into the right tray.

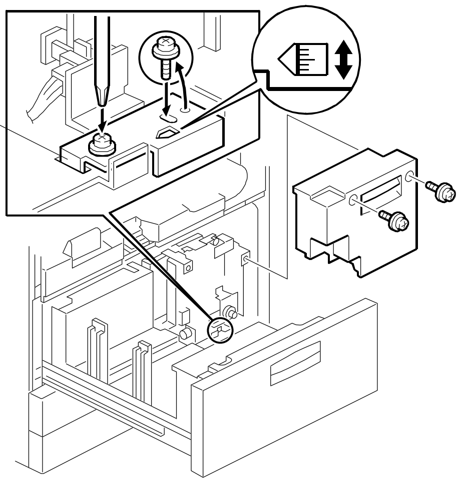
When the actuator on the rear fence activates the rear fence return position sensor [D], the rear fence drive motor turns clockwise until the actuator activates the rear fence HP sensor [E].

While the rear fence is moving, the left 1st tray lock solenoid [F] turns on and the lock lever [G] locks the left tray.

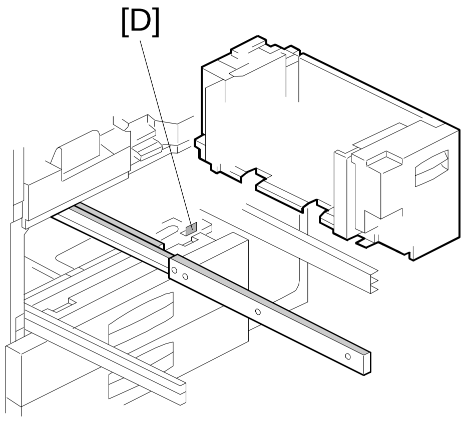
Tray Positioning



A294D655.WMF



A294D656.WMF



A294D612.WMF

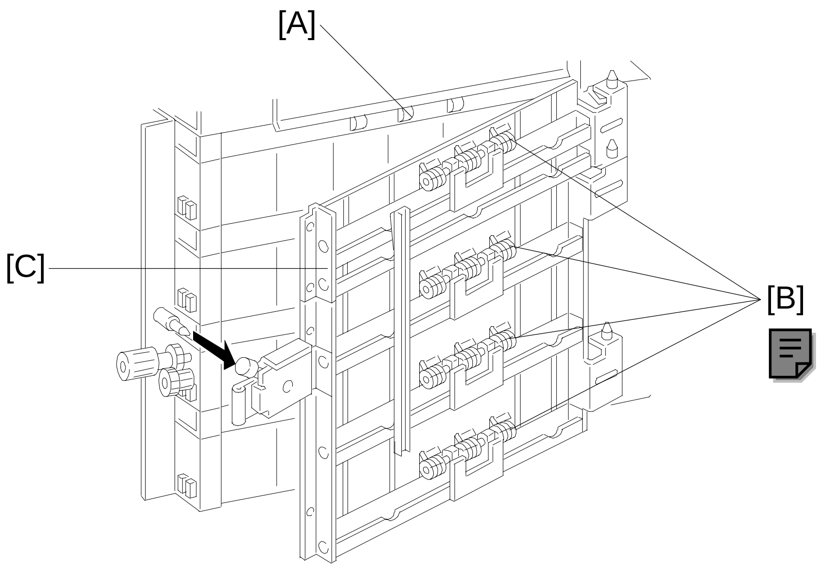
Tray Lock

When the feed tray is set in the paper feed unit, the lock lever [A] drops behind the lock plate [B] on the Accuride support bracket to lock the tray in the proper position.

Side-to-side Positioning

When the feed tray is set in the paper feed unit, the side-to-side positioning plate [C] presses the feed tray against the stopper [D]. By moving the positioning plate, the tray position can be changed to adjust the side-to-side registration.

2.8.9 VERTICAL TRANSPORT



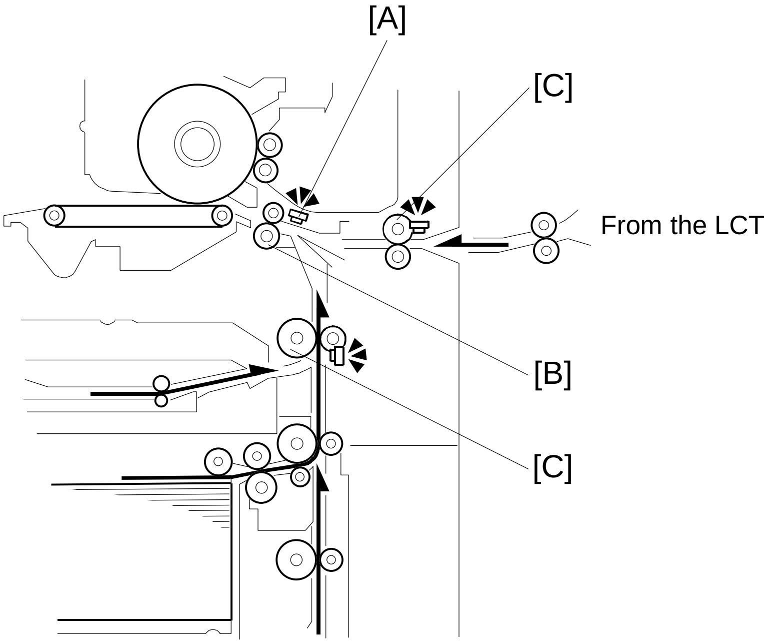
A294D617.WMF

The vertical transport rollers [A] in each feed unit are all driven by the paper feed motor. The vertical transport rollers and the vertical transport idle rollers [B], on the inner and outer vertical guide plates, transport the paper up from each feed unit towards the relay and registration rollers.

The vertical transport guides [C] can be opened to remove jammed paper in the vertical transport area.

2.8.10 PAPER REGISTRATION

Overview



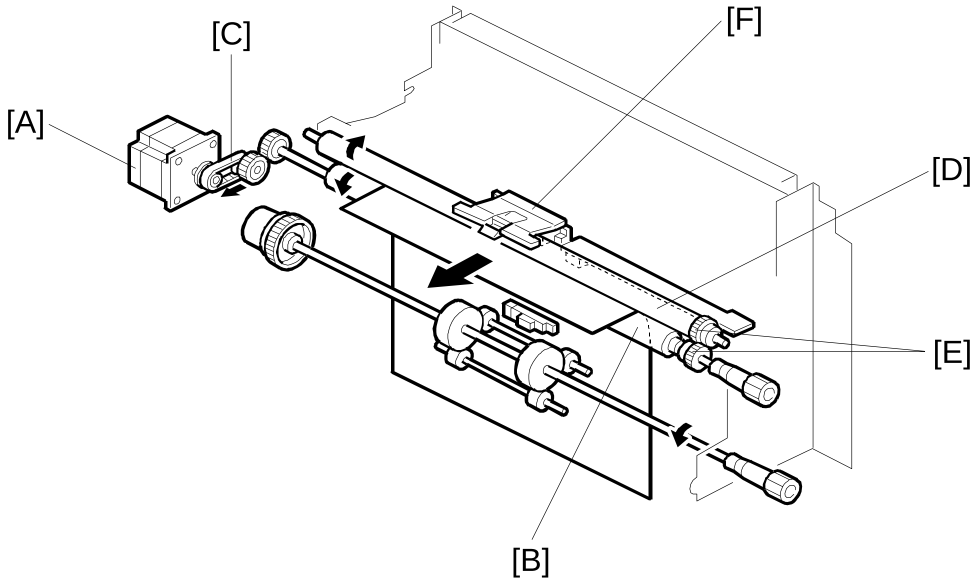
A294D702.WMF

The registration sensor [A] is positioned just before the registration rollers [B].

When the paper leading edge activates the registration sensor, the registration motor is off and the registration rollers are not turning. However, the upper relay roller (or LCT relay roller for feed from the LCT) [C] stays on for a bit longer. This delay allows time for the paper to press against the registration rollers and buckle slightly to correct skew. Then, the registration motor energizes and the relay clutch re-energizes at the proper time to align the paper with the image on the drum. The registration and relay rollers feed the paper to the image transfer section.

The registration sensor is also used for paper misfeed detection.

Registration Drive



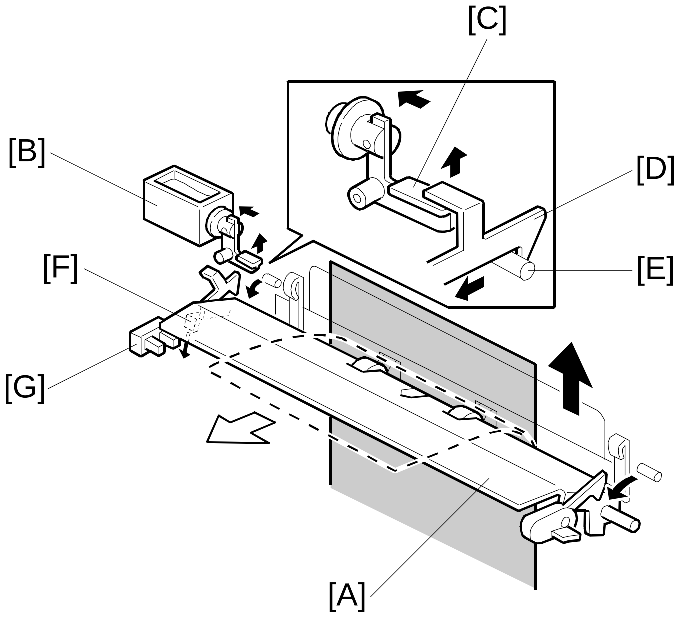
A294D596.WMF

The registration motor [A] drives the lower registration roller [B] through a timing belt [C] and some gears. Drive is transmitted to the upper registration roller [D] via two gears [E] at the front.

There is a paper dust remover [F] at the center of the upper registration roller [D]. This is in line with the feed rollers, where most paper dust is generated.

NOTE: Clean the dust remover every PM visit.

Guide Plate Release



A294D597.WMF

When a paper misfeed occurs between the vertical transport rollers and the registration rollers, the lower paper guide plate [A] automatically opens.

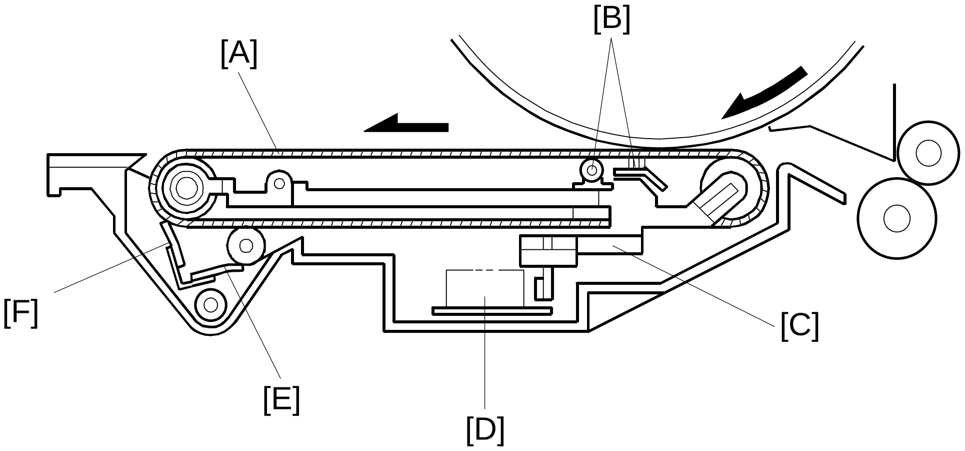
When the registration sensor is not activated at a certain jam check timing, the guide plate solenoid [B] turns on. The lever [C] raises the lock lever [D] on the guide plate to release it from the pin [E] on the rear side frame. Then the guide plate falls open.

The actuator [F] on the guide plate activates the guide plate position sensor [G] when the guide plate opens.

The user must close this guide plate manually after removing the jam, To prevent the guide plate from being left open, if the guide plate position sensor is activated, copying is disabled and a caution is displayed on the LCD panel.

2.9 IMAGE TRANSFER AND PAPER SEPARATION

2.9.1 OVERVIEW



A294D401.WMF

The transfer belt unit consists of the following parts:

[A]: Transfer belt
A belt (length: 321 mm) with high electrical resistance which holds a high positive electrical potential to attract toner from the drum to the paper. Also, the electrical potential attracts the paper itself and helps the paper to separate from the drum.

[B]: Transfer bias roller and transfer belt bias brush
Applies transfer voltage to the transfer belt.

[C]: Transfer belt lift lever (driven by a solenoid)
Lifts the transfer belt into contact with the drum.

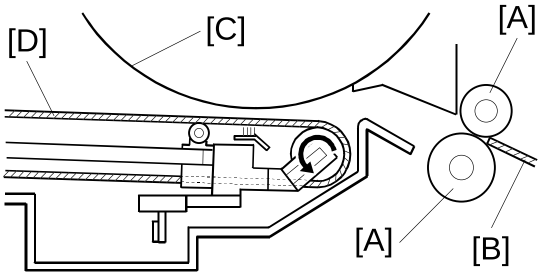
[D]: Transfer power pack
Generates a constant transfer current.

[E]: Cleaning roller and cleaning roller cleaning blade
Removes toner remaining on the transfer belt to prevent the rear side of the paper from getting dirty.

[F]: Transfer belt cleaning blade
Removes toner from the transfer belt. Any toner that is not removed by this blade is removed by the cleaning roller [E].

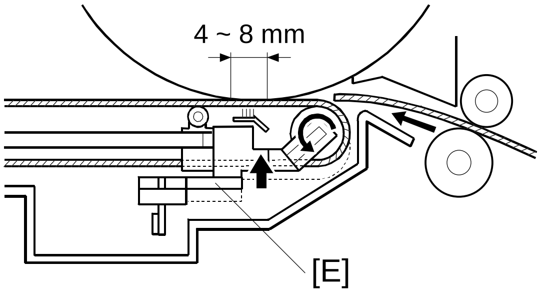
2.9.2 IMAGE TRANSFER AND PAPER SEPARATION

The registration rollers [A] feed the paper [B] to the gap between the drum [C] and the transfer belt [D].



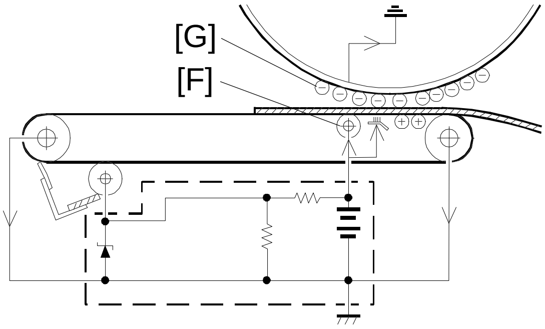
A294D507.WMF

As soon as the leading edge of the first sheet reaches the gap between the transfer belt and the drum, the transfer belt lift lever [E] raises the transfer belt into contact with the drum. The lift lever is driven by a solenoid.

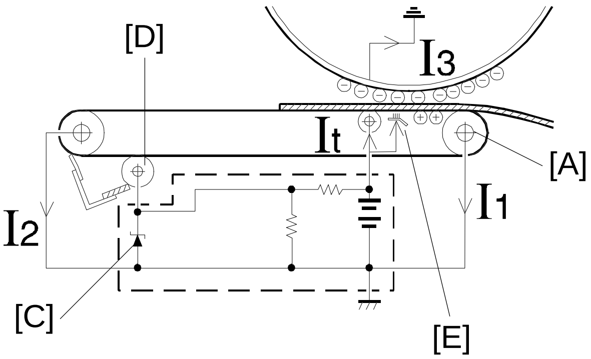


A294D508.WMF

Then a positive charge is applied to the transfer bias roller [F] and transfer belt bias brush to attract the negatively charged toner [G] from the drum. It also attracts the paper and separates it from the drum.



A294D648.WMF



A294D509.WMF

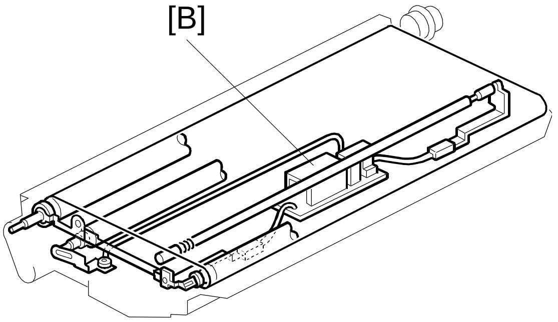
After the image transfer is completed, the charge on the transfer belt holds the paper to the transfer belt. After separating the paper from the transfer belt, the transfer belt is discharged by the transfer belt drive roller [A].

The transfer power pack [B] inside the transfer belt unit monitors the current (I_1 and I_2) fed back from the drive rollers at each end of the transfer belt to adjust the transfer current.

Then, the power pack adjusts I_t to keep the current through the drum (I_3) constant, even if the paper, environmental conditions, or transfer belt surface resistance change.

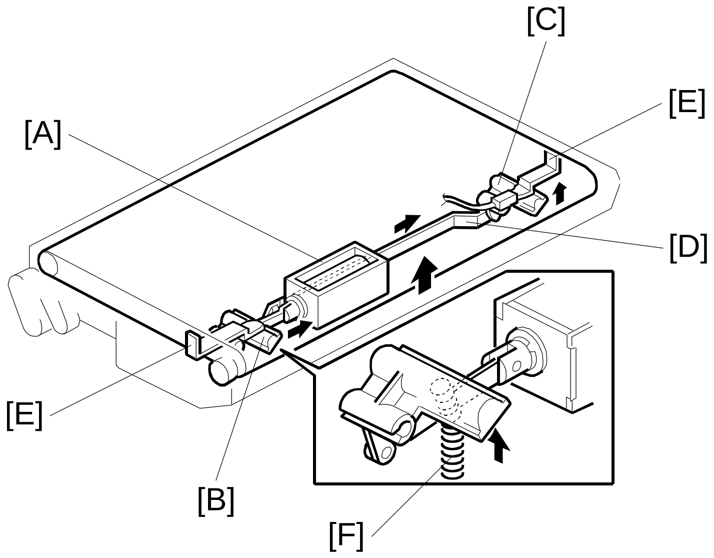
The varistor [C] keeps the voltage at the cleaning bias roller [D] constant.

To apply a higher current to the transfer belt without a higher voltage, the bias brush [E] has been incorporated near the nip between drum and belt. This ensures that enough transfer current is applied for this machine, which has a higher copy volume.



A294D503.WMF

2.9.3 TRANSFER BELT UNIT LIFT



A294D506.WMF

The transfer belt lift solenoid [A] inside the transfer belt unit turns on to raise the transfer belt into contact with the drum. The front lever [B] and the rear lever [C] are connected to the solenoid by links [D], and they push up the stays [E] when the solenoid turns on.

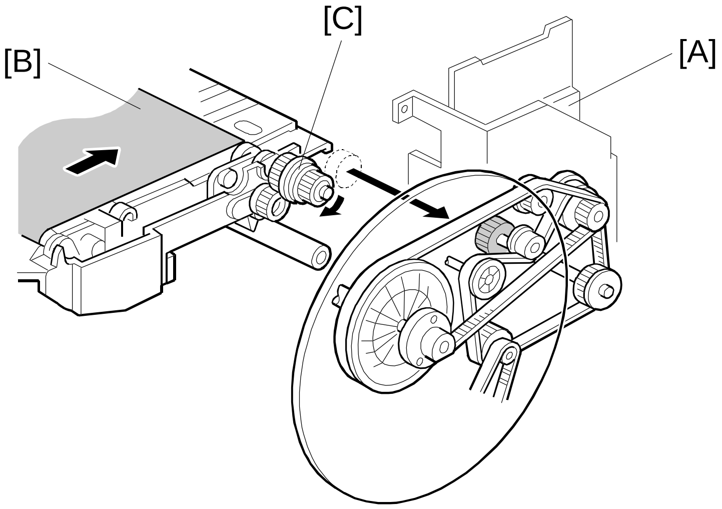
The support spring [F] helps the solenoid to raise the transfer belt.

The solenoid turns off after the copy job is finished.

The transfer belt must be released from the drum for the following reasons:

1. To prevent the ID sensor pattern on the drum from being rubbed off by the transfer belt, because the transfer belt is located between the development unit and the ID sensor.
2. To decrease the load on the bias roller cleaning blade, it is better to prevent toner on non-image areas (for example V_D, V_H, ID sensor patterns developed during process control data initial setting) from being transferred onto the transfer belt.
3. To prevent drum characteristics from being changed by remaining in contact with the rubber belt.

2.9.4 PAPER TRANSPORTATION AND BELT DRIVE

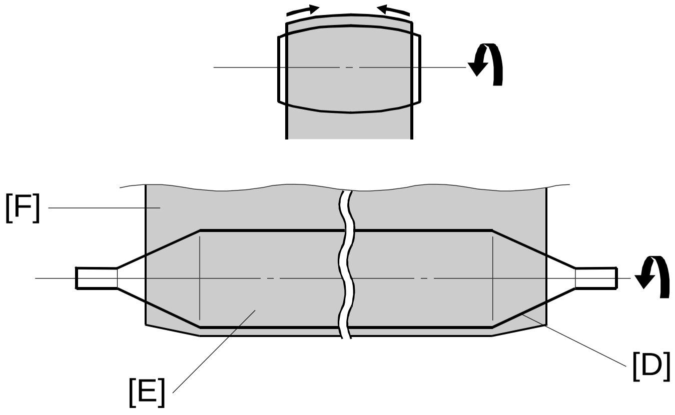


A294D402.WMF

The drum motor [A] drives the transfer belt through belts and gears. Since the transfer belt electrically attracts the paper [B], a transport fan is not required.

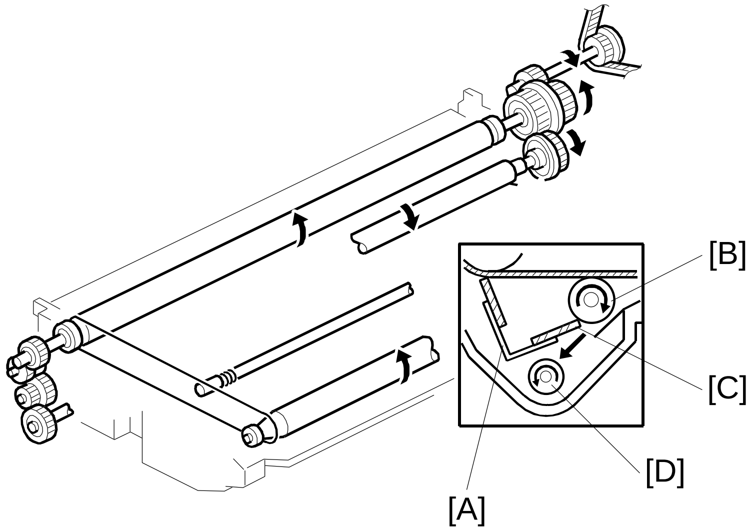
At the turn in the transfer belt, the transfer belt drive roller [C] discharges the belt to reduce paper attraction, and the paper separates from the belt as a result of its own stiffness.

The tapered parts [D] at both ends of the roller [E] help keep the transfer belt [F] in the center, so that it does not run off the rollers.



A294D511.WMF

2.9.5 TRANSFER BELT CLEANING



A294D403.WMF

Some toner may adhere to the transfer belt when paper jams occur. The adhered toner must be removed to prevent the rear side of the copy paper from getting dirty.

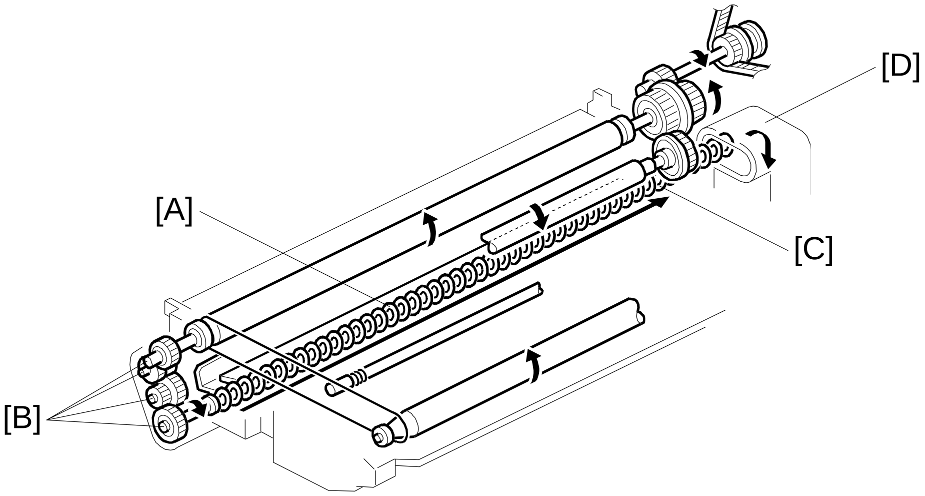
The cleaning blade [A] scrapes off any toner remaining on the transfer belt. This is a counter blade system.

Even if the toner is not completely removed due to paper dust stuck on the transfer belt cleaning blade [A], the positively charged cleaning bias roller [B] attracts the remaining toner. The bias roller cleaning blade [C] scrapes toner off the cleaning bias roller.

The surface of the transfer belt is coated to make it smooth and prevent the transfer belt from flipping the cleaning blade.

The toner collection coil [D] transports toner cleaned off the transfer belt to the waste toner collection bottle (see Toner Supply and Recycling for more on this).

2.9.6 TONER COLLECTION

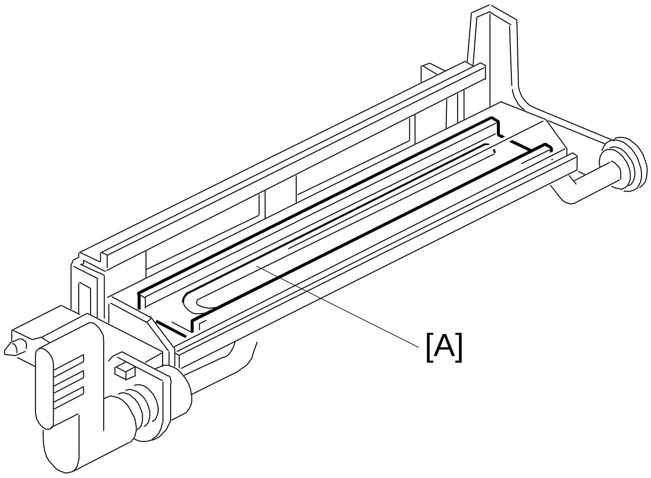


A294D505.WMF

Transfer belt drive is transmitted to the toner collection coil [A] through idle gears [B]. The toner collection coil [C] transports the collected toner to the toner recycling unit [D] and from there it goes to the waste toner collection bottle.

See Toner Supply and Recycling for details.

2.9.7 TRANSFER ANTI-CONDENSATION HEATER



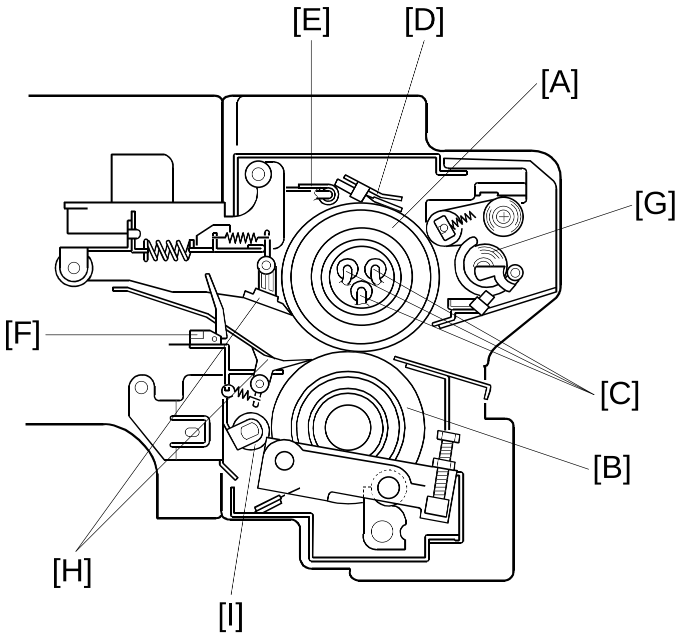
A294D048.WMF

The transfer anti-condensation heater [A] is located under the transfer belt unit. It turns on when the main switch is off to prevent moisture from forming on the transfer belt.

The heater is included in the machine at the factory, but the connector is not connected.

2.10 FUSING

2.10.1 OVERVIEW



A294D501.WMF

After transferring the image, the copy paper enters the fusing unit. A heat and pressure process using a hot roller [A] and a pressure roller [B] fuses the image to the copy paper.

There are three identical fusing lamps (530 W each) [C] inside the hot roller. They are turned on and off to maintain the operating temperature of 175°C. The CPU monitors the hot roller surface temperature through a thermistor [D], which is in contact with the hot roller's surface. A thermofuse [E] protects the fusing unit from overheating.

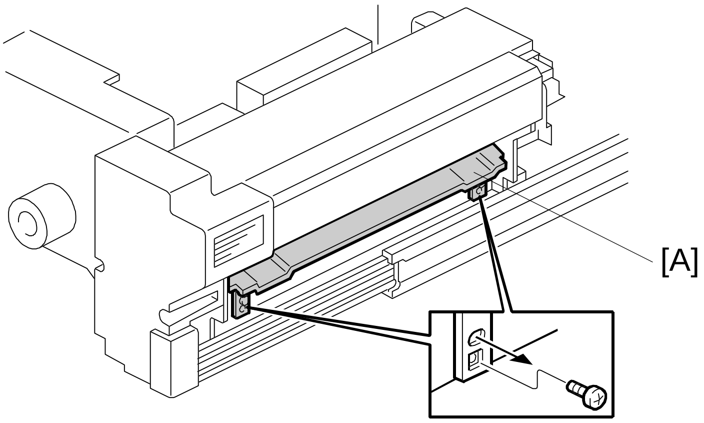
The fusing exit sensor [F] monitors the progress of the copy paper through the fusing unit and acts as a mis-feed detector while the exit rollers drive the copy paper to the inverter section.

The oil supply roller and cleaning web [G] applies a light coat of silicone oil to the hot roller. It also removes the paper dust on the hot roller.

The hot roller and pressure roller have stripper pawls [H] to prevent wrap-around jams.

The pressure roller is cleaned by a steel cleaning roller [I]. Toner adheres to steel more readily than to silicone rubber.

2.10.2 FUSING ENTRANCE GUIDE



A294D009.WMF

The entrance guide [A] for this machine is adjustable for thick or thin paper by changing the screw position from the upper to the lower.

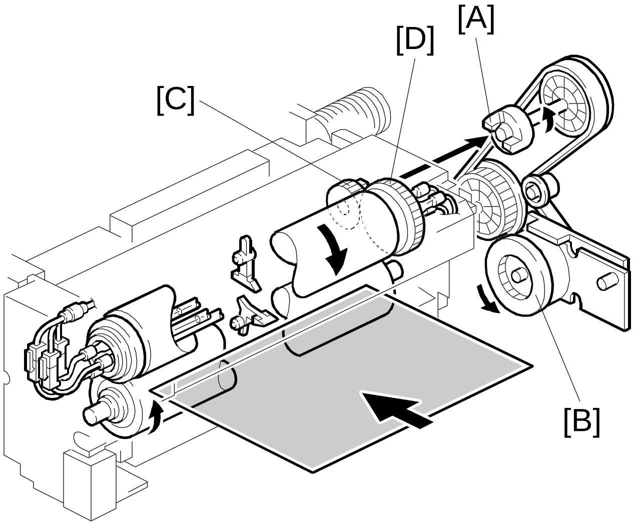
With thin paper, set the entrance guide in the upper position. This slightly lengthens the paper path, which prevents the paper from creasing in the fusing unit.

With thick paper, set the entrance guide in the lower position. This is because thick paper does not bend as easily, and is therefore less prone to creasing. In addition, the lower setting allows more direct access to the gap between the hot and pressure rollers. This prevents thick paper from buckling against the hot roller, which can cause blurring at the leading edge of the copy.

In this model, the transfer belt improves paper transport and stabilizes the paper path to the fusing entrance. This reduces the chance of paper creasing due to paper skews in the fusing unit.

Use the screws to adjust the guide plate position. Since there are very few reasons to change the guide plate position, there is no guide plate position adjustment lever for customer use.

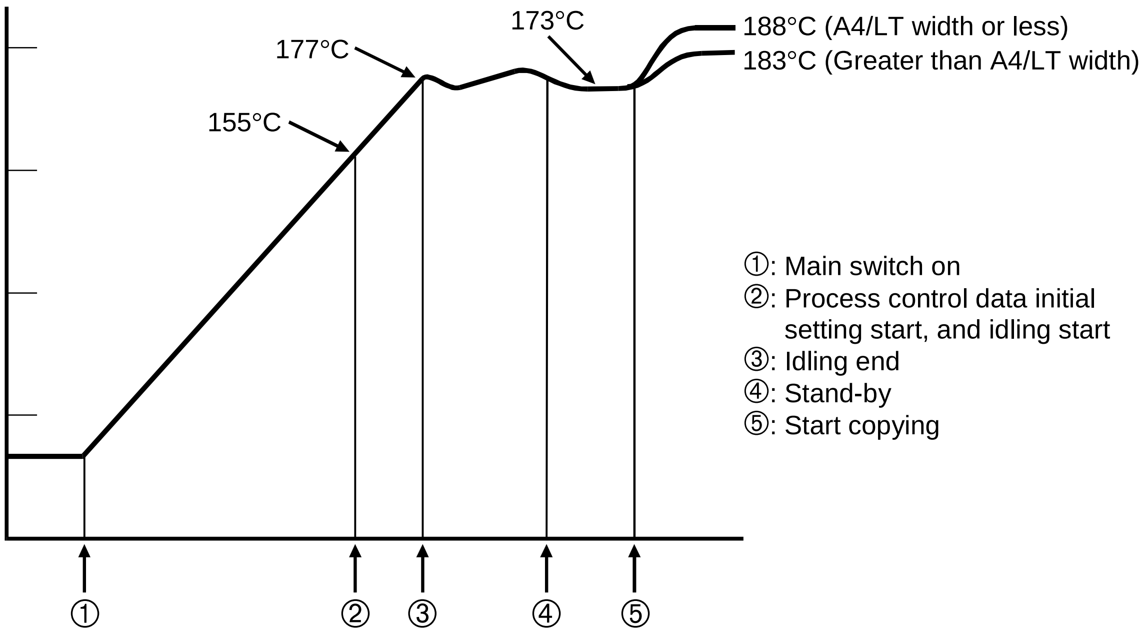
2.10.3 FUSING UNIT DRIVE



A294D510.WMF

The fusing drive gear [A] transmits drive from the fusing/duplex drive motor [B] to the gear [C], which drives the hot roller gear [D]. Rotation passes from the gear [C] through an idle gear to the exit roller drive section. The pressure roller is driven by the friction between the hot and pressure rollers.

2.10.4 FUSING LAMP CONTROL



A294D627.WMF

After turning the main switch on, the CPU turns on all three fusing lamps one at time, with a 1 second interval between each lamp turning on. This prevents the power on the AC line from dropping suddenly.

When the fusing temperature reaches 155°C, the machine starts the process control data initialization. If the fusing temperature was already above 100°C when the main switch was turned on, the process control initial setting is not done.

When the fusing temperature reaches 155°C, the copier starts fusing idling. If the fusing temperature was already above 155°C at power on, fusing idling is not done.

When the temperature has reached 177°C, the warm-up period is completed and the “Ready” indicator turns on. After this, the machine maintains a fusing temperature of 173°C.

In stand-by mode, one of the fusing lamps turns on alternately to maintain the ready temperature. During the copy cycle, the three fusing lamps maintain the operating temperature; if they have to turn on, they turn on one at time, with a 1 second interval between each lamp.

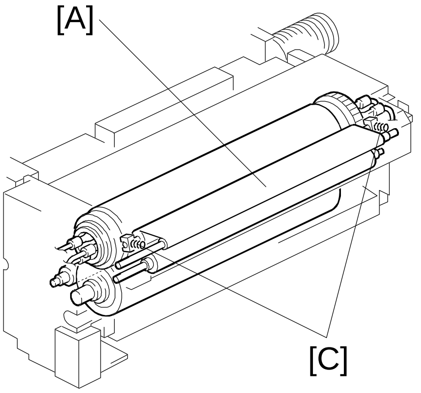
The CPU changes the fusing lamp on period depending on the temperature measured by the thermistor, to keep the fusing temperature as close as possible to the target temperature.

If one lamp breaks during copying, the machine still works. But, if it discovers a broken lamp just after being switched on, an SC occurs and copying is impossible.

The machine uses on-off control mode to maintain the fusing temperature.

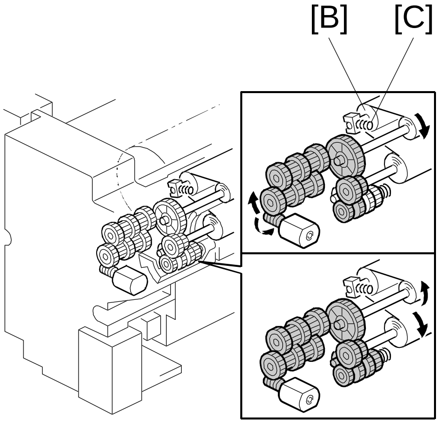
Even if thick paper mode is selected, fusing temperature control does not change.

2.10.5 OIL SUPPLY AND CLEANING



A294D553.WMF

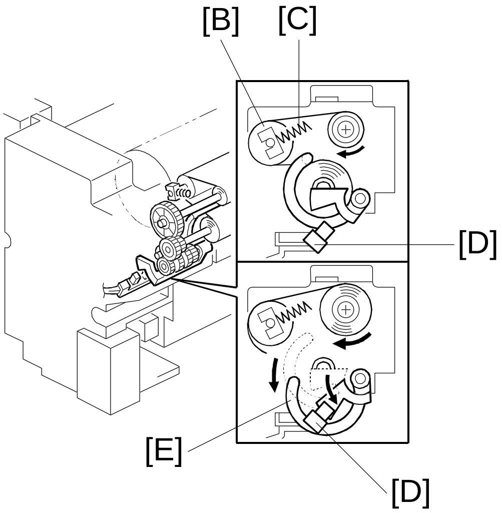
The oil supply and cleaning web [A] feeds the web felt soaked with silicone oil. The roller [B] contacting the web felt also contacts the hot roller because of pressure from springs [C]. It applies a light coat of silicone oil to the hot roller and removes paper dust from the hot roller. A spring clutch inside the mechanism pulls the web to take up the slack, to prevent it getting pulled in between the fusing rollers.



A294D504.WMF

Every 40 s during printing, the oil supply/cleaning web motor turns for 0.8 s to move the oil supply and cleaning web felt. This 40-second interval starts when the first copy reaches the fusing exit sensor, and ends 2 s after the last copy has passed this sensor. SP1-902-2 & 3 adjust the motor rotation interval and rotation time.

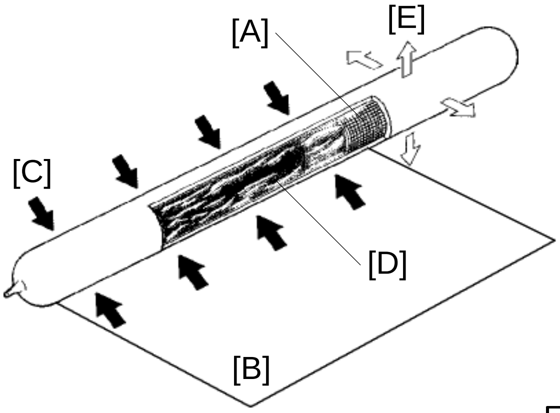
SP1-902-1 displays the web consumption. When the web consumption exceeds the value set with SP1-902-4 (web near-end), the machine indicates web near-end on the operation display. The machine still works until the oil supply/cleaning web end sensor [D] detects when the feeler [E] drops from the web. At this time, SC550 is indicated in the operation panel display. In this condition, a technician must install a new oil supply and cleaning web, and return SP1-902-1 to 0. Then, the SC will be cleared.



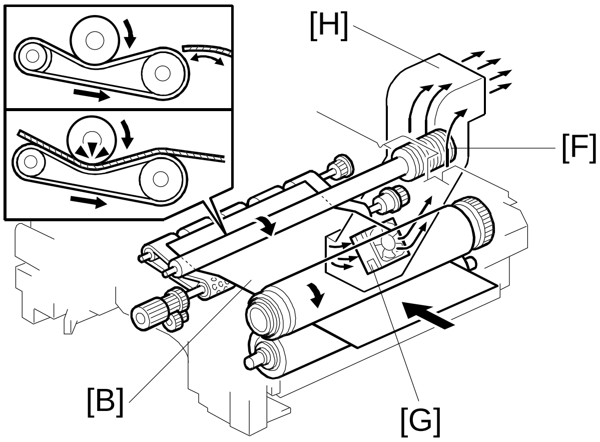
A294D555.WMF

Adjust SP1-902-4 (web near-end) to change the near-end period. The default is 100%. With this setting, about 400 k copies can be made before the near-end message is displayed. After that, another 40 k can be made until the web ends. If this SP is changed to 80%, about 320 k copies can be made before the near-end message is displayed. After that, another 120 k can be made until the web ends. These figures assume that 80% of the user’s output is A4 sideways.

2.10.6 PAPER COOLING



A294D631.PCX



A294D653.WMF

The paper cooling pipe cools the copy paper after it has gone through the fusing unit. This prevents the temperature around the drum from increasing in duplex mode.

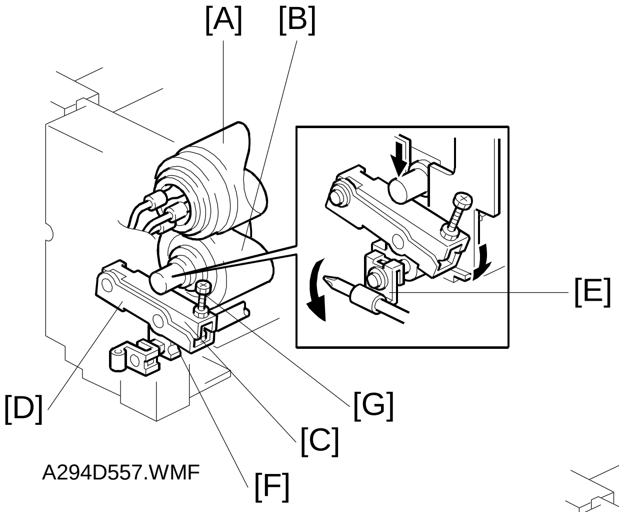
The paper cooling pipe has fins at the rear end. A fan cools the fins.

The paper cooling pipe has a hollow metal tube inside. Water capillary tubes [A] run along the inside of the paper cooling pipe, and these transfer heat within the pipe. The hot paper [B] leaving the fusing unit heats the parts of the cooling pipe that it touches (black arrows [C]), causing the water in the pipe to vaporize. This creates a high-speed flow of steam [D] to the ends of the pipe, which are cooler, and especially to the rear end [E], which is well away from the paper feed path, and has the cooling fins [F] attached to it. When the steam reaches that area, it cools and condenses. The condensed water is returned to the heated part of the pipe by capillary action.

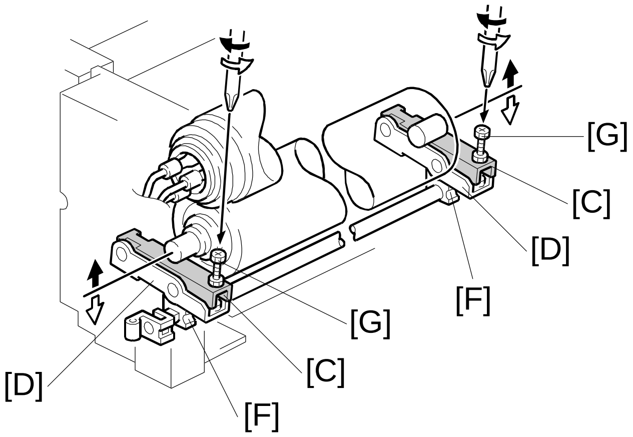
This cycle (vaporization → steam transfer → condensation) repeats again and again. The paper cooling pipe transfers heat from the paper to the fins continuously.

The paper cooling pipe fan [G] in the duct [H] at the machine rear side cools the fins [F].

2.10.7 FUSING PRESSURE



A294D557.WMF

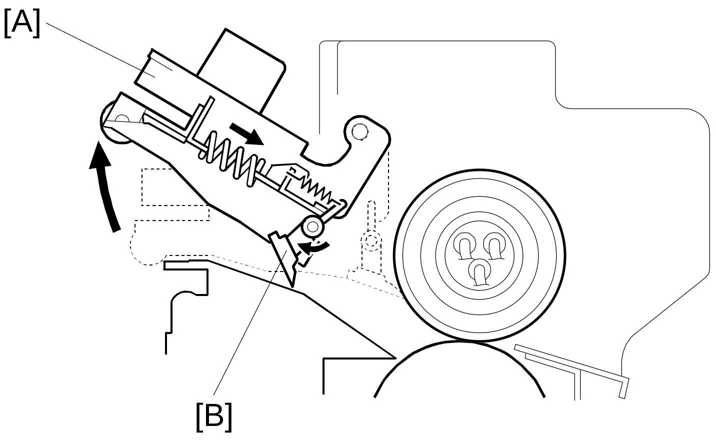


A294D556.WMF

Fusing pressure is constantly applied between the hot roller [A] and pressure roller [B] by the upper pressure lever [C] and lower pressure lever [D], which are lifted by the fusing unit release lever [E] via the pressure cam [F]. The pressure can be adjusted by using the pressure adjustment screw [G].

The fusing pressure is released by turning the fusing unit release lever counterclockwise.

2.10.8 HOT ROLLER STRIPPER RELEASE

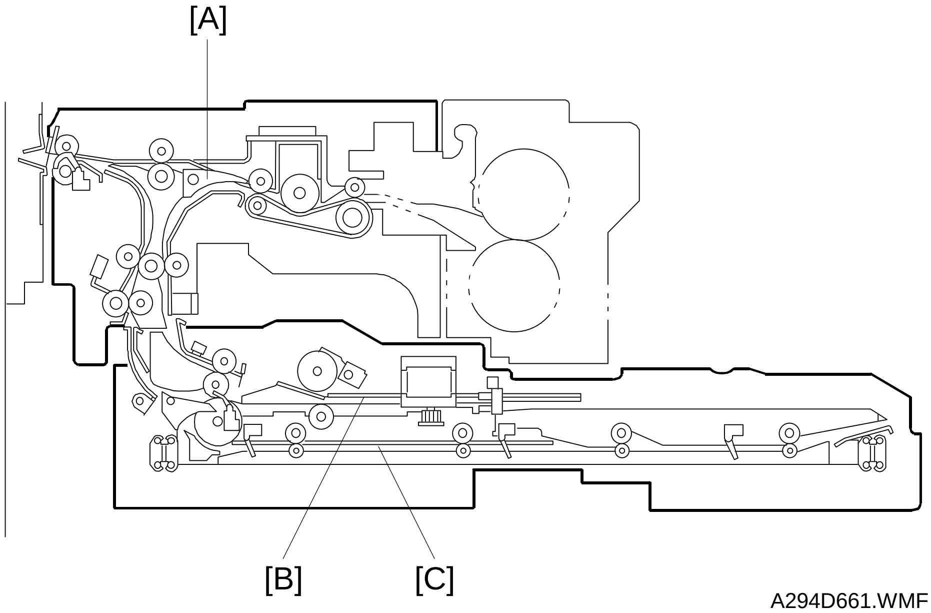


A294D008.WMF

For easier jam removal, when the hot roller stripper unit [A] is opened, the stripper pawls [B] turn clockwise to expand the jam removal area.

2.11 PAPER EXIT/DUPLEX

2.11.1 OVERVIEW



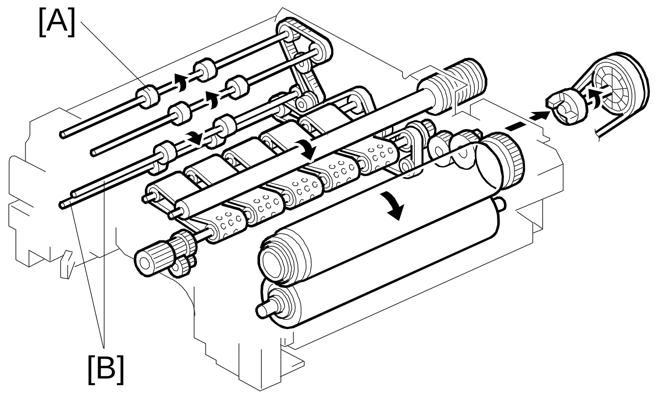
A294D661.WMF

The printed page from the fusing unit goes either straight through to the output tray or finisher, or downward through to the inverter or duplex unit, depending on the position of the junction gate [A].

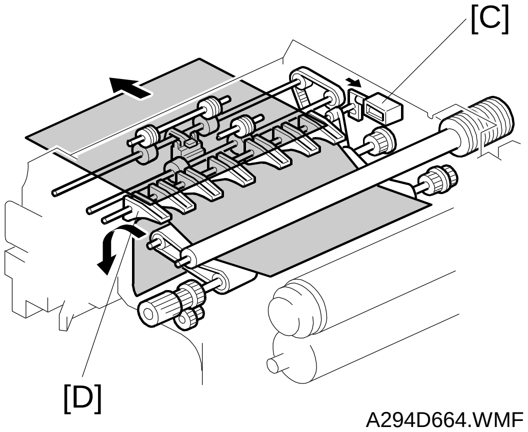
If the page is fed out directly, it arrives on the tray face-up. If the user selected face-down output, the page goes to the inverter [B] before being fed out.

If the user selects duplex mode, the page is directed to the duplex tray [C] after inverting, and back to the machine for printing the second side.

2.11.2 PAPER EXIT MECHANISM



A294D662.WMF

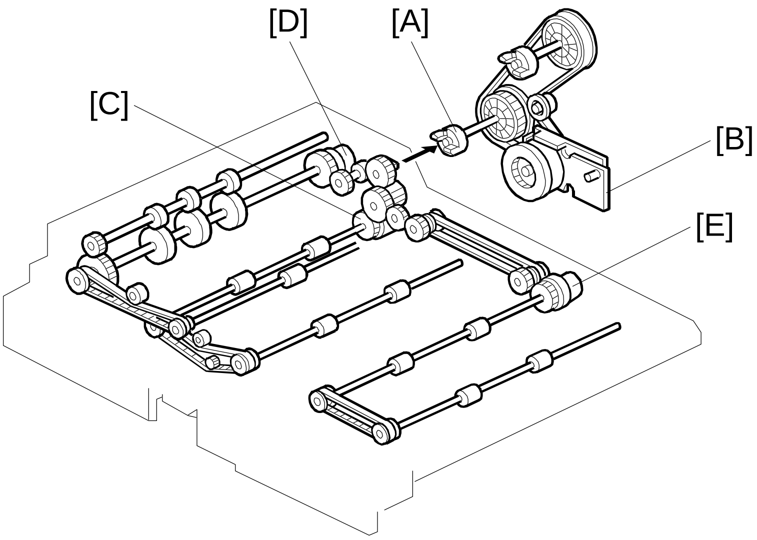


A294D664.WMF

Drive from the fusing/duplex motor is transmitted to the paper exit roller [A] and transport rollers [B].

To feed the printed page from the fusing unit straight through to the output tray or finisher, the inverter gate solenoid [C] energizes to open the junction gate [D]. To feed the page to the inverter and duplex unit, the solenoid stays off.

2.11.3 DUPLEX DRIVE MECHANISM



A294D801.WMF

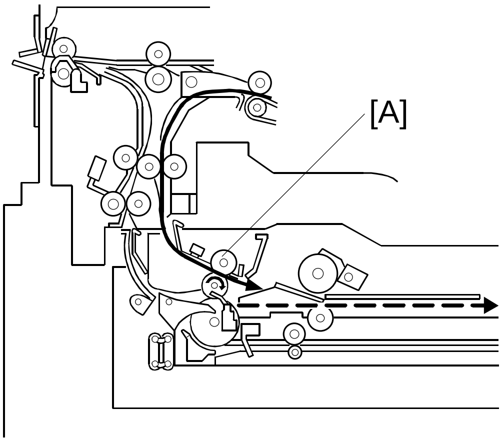
The duplex drive coupling gear [A] transmits drive from the fusing/duplex drive motor [B] to the duplex unit.

The duplex transport clutch [C] transmits this drive to the duplex transport section, the inverter exit roller clutch [D] transmits it to the duplex inverter exit section, and the duplex feed clutch [E] transmits it to the duplex paper feed-out section.

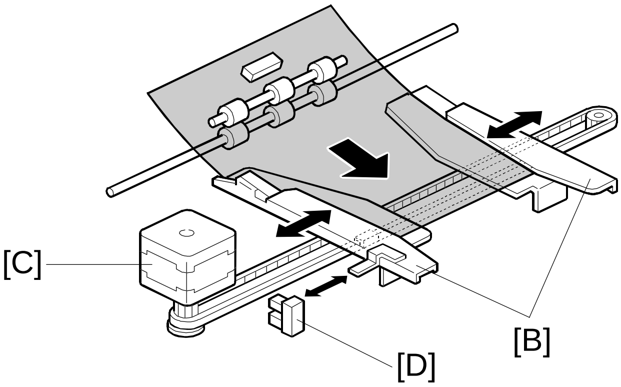
The inverter exit roller clutch engages the drive (i.e., the roller turns) while the clutch is not energized. This clutch disengages the drive when the clutch is turned on. This prevents the clutch from being energized for a long time.

2.11.4 INVERTER

Feed-in and Jogging



A294D802.WMF



A294D803.WMF

The inverter feed roller [A] feeds paper to the jogger section. After the trailing edge of the paper passes through the inverter feed roller, the jogger fences [B] move to square the paper. This happens every page.

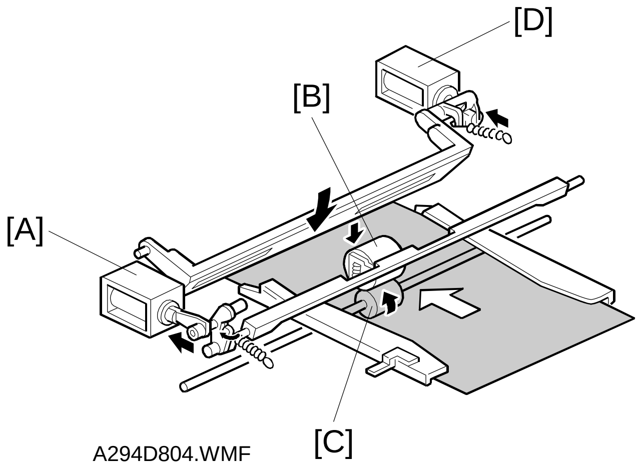
The jogger motor (a stepper motor) [C] moves the jogger fences [B] inward or outward.

When the main switch is turned on, the jogger motor places the jogger fences at the home position, which is determined by monitoring the signal from the jogger home position sensor [D].

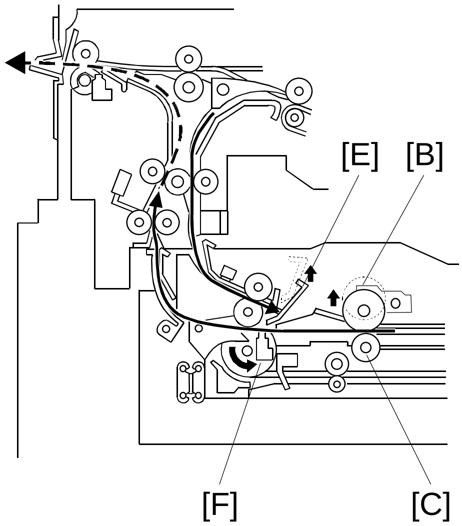
When the start key is pressed, the jogger motor positions the jogger fences 15 mm away from the selected paper size to wait for the paper.

When the paper is delivered to the jogger fences, the jogger fences move inward to square the paper. After this, the jogger fences move back to the previous position (15 mm away from the paper).

Feed-out



A294D804.WMF

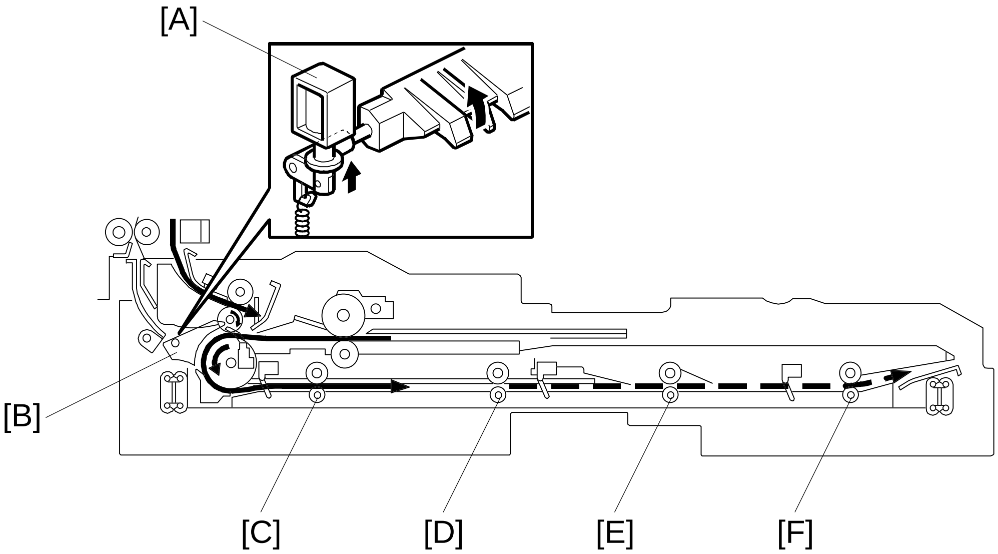


A294D805.WMF

After jogging, the reverse roller solenoid [A] energizes to push down the reverse trigger roller [B]. The reverse roller [C] turns counterclockwise continuously, so the paper starts to reverse when the reverse trigger roller is down and catches the paper between the rollers. The inverter guide plate solenoid [D] energizes to lower the inverter guide plate [E], so that the paper is guided by the inverter guide plate. The next sheet waits at the inverter guide plate.

The paper is fed from the reverse roller to the inverter exit roller [F]. After the paper starts to be fed by the inverter exit roller, the reverse trigger roller and inverter guide plate move back up.

2.11.5 DUPLEX TRAY FEED MECHANISM



A294D806.WMF

In duplex mode, after the paper leaves the inverter, the duplex inverter gate solenoid [A] switches the junction gate [B] to direct the paper to the duplex tray. The paper is fed through the duplex tray by duplex transport rollers 1 [C], 2 [D], 3 [E], and the duplex feed roller [F].

If duplex mode is not selected, the solenoid does not switch the junction gate, and the paper goes to the output tray or finisher face down.

2.11.6 BASIC DUPLEX FEED OPERATION

To improve the productivity of duplex copying, a non-stacking style duplex mechanism is adopted. This type of mechanism allows more than one page to be processed at once, in a process called ‘interleaving’. Examples of this are given below.

For paper lengths up to A4/Letter sideways, the top duplex speed is possible, with the duplex unit processing four sheets of copy paper at the same time.

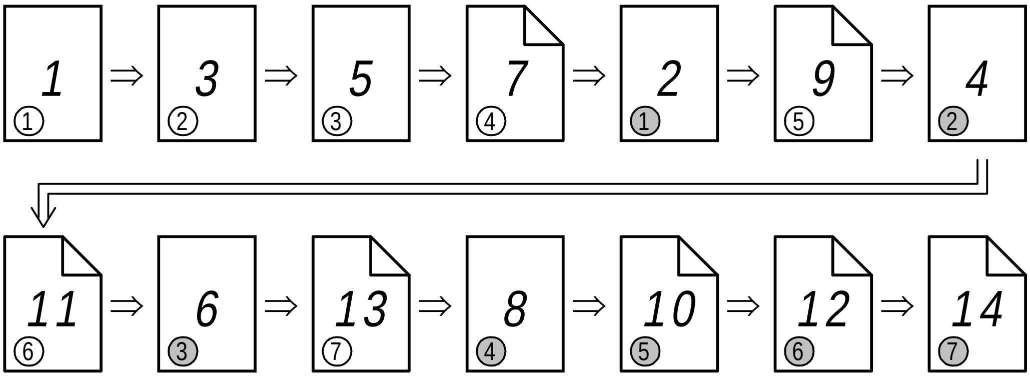
For paper longer than this, the duplex tray can process two sheets of copy paper at once.

For a single-set duplex copy job, the duplex unit stores only one sheet of copy paper. For a multi-set duplex job, the job is stored first, then the first set is made using inerleaving.

Length up to A4/Letter Sideways

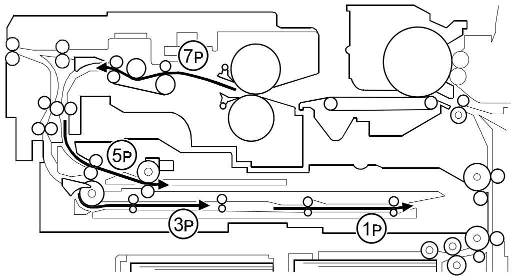
The duplex unit can process four sheets of copy paper

Example: A 14-page copy. The large numbers in the illustration show the order of pages. The small numbers in circles show the order of sheets of copy paper (if shaded, this indicates the second side).



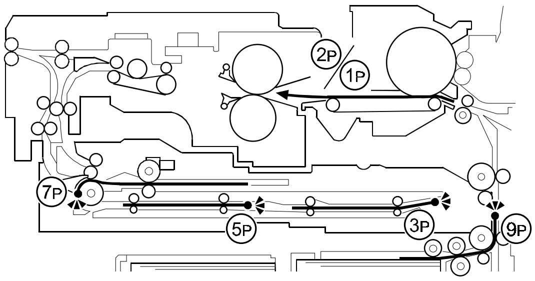
A294D550.WMF

1. The first 4 sheets are fed and printed.
   1) 1st sheet printed (1st page)
   2) 2nd sheet printed (3rd page)
   3) 3rd sheet printed (5th page)
   4) 4th sheet printed (7th page)



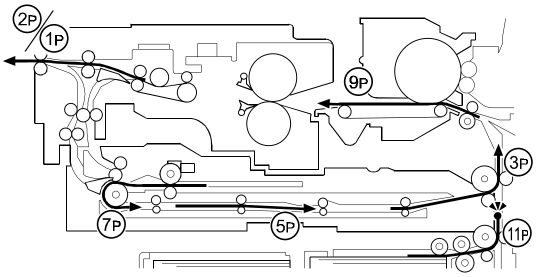
A294D807.WMF

2. The back of the 1st sheet is printed (2nd page).
3. The 2nd, 3rd, 4th sheets (3rd, 5th, and 7th pages) go into the duplex unit.
4. The 5th sheet (9th page) is fed in.


2P
1P
7P
5P
3P
9P

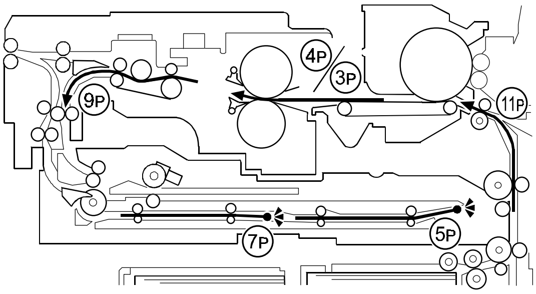
A294D808.WMF

5. The 5th sheet is printed (9th page).
6. The 1st sheet is fed out (1st and 2nd pages printed).

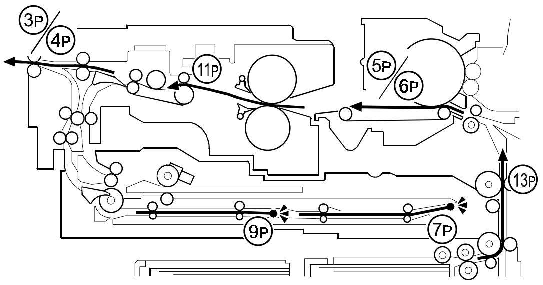

2P
1P
9P
3P
7P
5P
11P

A294D809.WMF

7. The 5th sheet (9th page) is directed to the duplex unit.
8. The 6th sheet (11th page) is fed.
9. The back of the 2nd sheet is printed (4th page).


4P
3P
9P
11P
7P
5P

A294D810.WMF



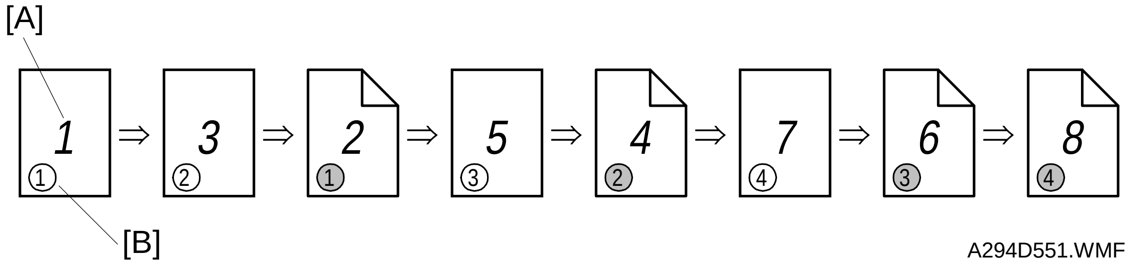
A294D811.WMF

10. The 2nd sheet is fed out (3rd and 4th pages printed).
11. The 6th sheet is printed (11th page) and directed to the duplex unit.
12. The back of the 3rd sheet (6th page) is printed.
13. The 7th sheet is fed and printed (13th page).
14. The back of the 4th sheet is printed (8th page) and fed out (7th and 8th page).
15. The back of the 5th sheet is printed (10th page) and fed out (9th and 10th pages).
16. The back of the 6th sheet is printed (12th page) and fed out (11th and 12th pages).
17. The back of the 7th sheet is printed and fed out (13th and 14th pages).

Longer than A4/Letter Sideways

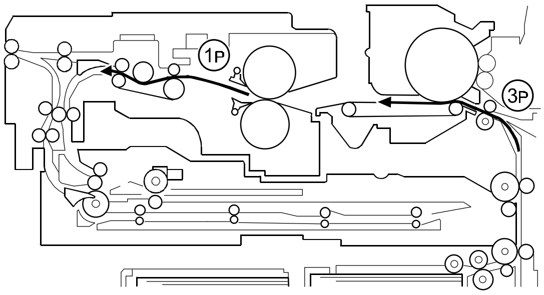
The duplex unit can process two sheets of copy paper

Example: 8 pages. The number [A] in the illustration shows the order of pages. The number [B] in the illustration shows the order of sheets of copy paper (if shaded, this indicates the second side).



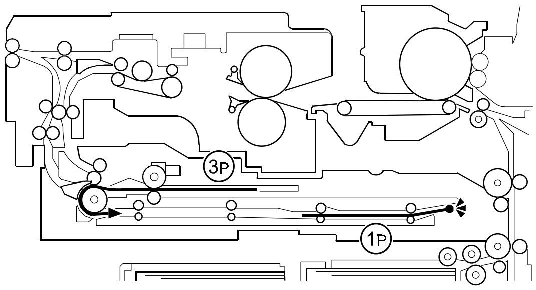
A294D551.WMF

1. The first 2 sheets are fed and printed.
   1) 1st sheet printed (1st page)
   2) 2nd sheet printed (3rd page)



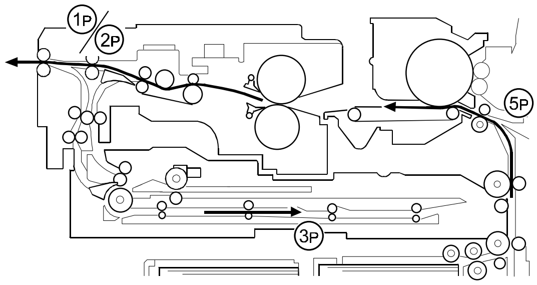
A294D857.WMF

2. The first 2 sheets go into the duplex unit.



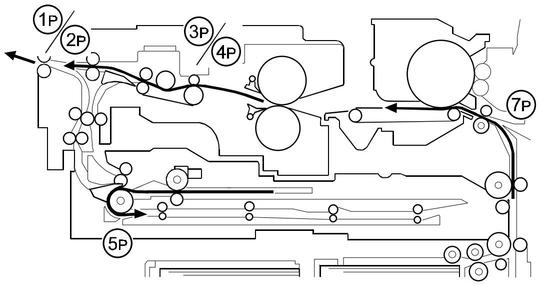
A294D858.WMF

3. The back of the 1st sheet (2nd page) is printed.
4. The 3rd sheet (5th page) is fed and printed.



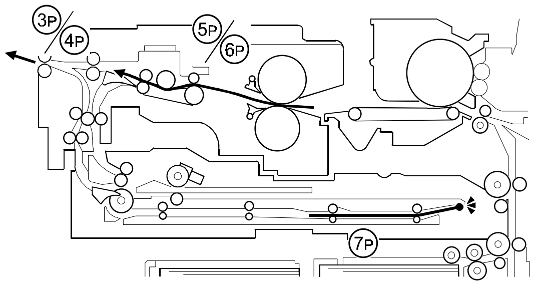
A294D859.WMF

5. The 1st sheet (1st and 2nd pages) is fed out.
6. The back of the 2nd sheet (4th page) is printed.
7. The 4th sheet (7th page) is fed and printed.



A294D860.WMF

8. The 2nd sheet (3rd and 4th pages) is fed out.
9. The back of the 3rd sheet (6th page) is printed.

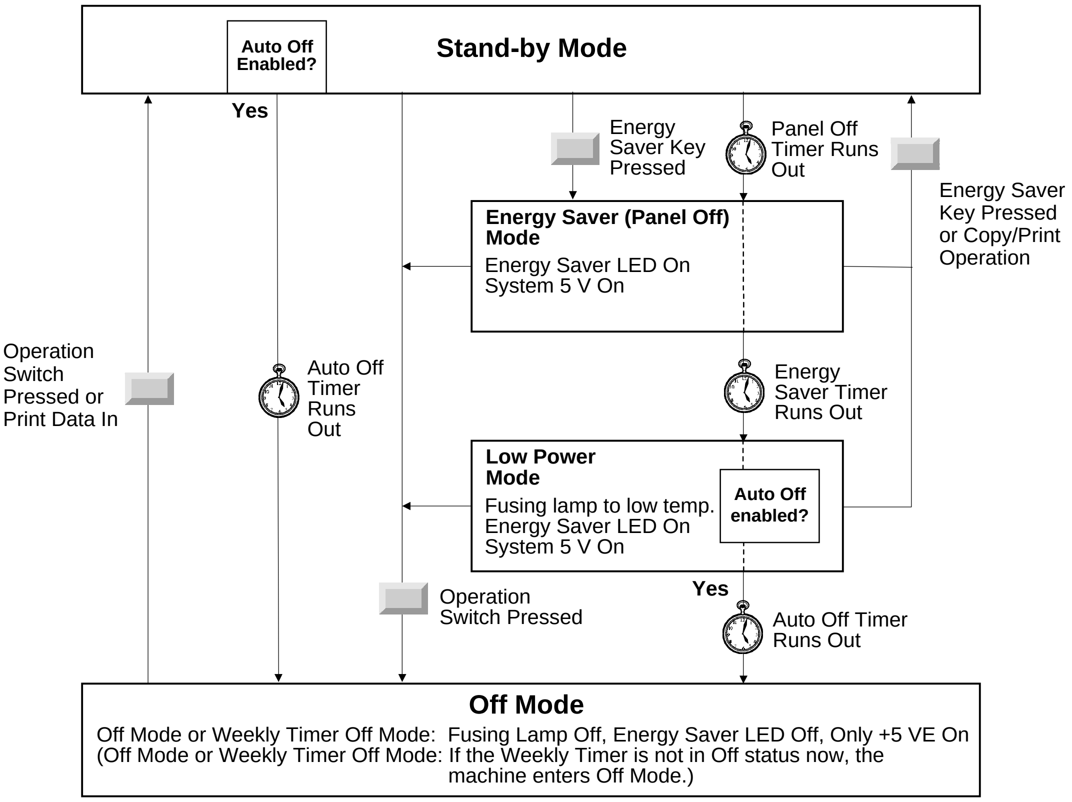


A294D861.WMF

10. The 3rd sheet (5th and 6th pages printed) is fed out.
11. The back of the 4th sheet (8th page) is printed.
12. The 4th sheet (7th and 8th pages) is fed out.

2.12 ENERGY SAVER MODES

2.12.1 OVERVIEW


Stand-by Mode
Auto Off Enabled?
Yes
Energy Saver Key Pressed
Panel Off Timer Runs Out
Energy Saver Key Pressed or Copy/Print Operation
Energy Saver (Panel Off) Mode
Energy Saver LED On
System 5 V On
Operation Switch Pressed or Print Data In
Auto Off Timer Runs Out
Energy Saver Timer Runs Out
Low Power Mode
Fusing lamp to low temp.
Energy Saver LED On
System 5 V On
Auto Off enabled?
Yes
Operation Switch Pressed
Auto Off Timer Runs Out
Off Mode
Off Mode or Weekly Timer Off Mode: Fusing Lamp Off, Energy Saver LED Off, Only +5 VE On
(Off Mode or Weekly Timer Off Mode: If the Weekly Timer is not in Off status now, the machine enters Off Mode.)

A294D647.WMF

When the machine is not used, the energy saver function reduces power consumption by decreasing the fusing temperature.

This machine has three energy saver modes.
1) Energy saver (Panel off) mode
2) Low power mode
3) Off mode (this has two modes, Auto Off Mode and Weekly Timer Off Mode)

These modes are controlled by the following UP modes.

- Panel off timer: The machine enters energy saver (panel off) mode when this runs out
- Energy saver timer: The machine enters low power mode when this runs out
- Auto off timer: The machine enters auto off mode when this runs out
- Weekly timer programming: Programs a timer for the machine to switch itself on and off (this is for Weekly Timer Off Mode)
- Auto off mode disabling (User Tools – System Setting – Count Manager – AOF) If auto off mode is disabled, the machine will never enter auto off mode. The fusing lamps will always stay on, but the machine will still be able to enter energy saver and low power modes.

The way that the machine operates depends on the combination of installed equipment (copier only, copier/printer).

2.12.2 ENERGY SAVER (PANEL OFF) MODE

Entering Energy Saver (Panel Off) Mode

The machine enters energy saver mode (also known as ‘panel off mode’) when one of the following is done.

- The panel off timer runs out after the end of a job.

  NOTE: If the panel off timer is 0, the machine will wait for the energy saver timer to run out, and then it will go straight to low power mode (see Low Power Mode).

- The Clear Mode/Energy Saver Key is held down for a second.

What Happens in Energy Saver (Panel Off) Mode

When the machine enters energy saver (panel off) mode, the fusing unit temperature stays at 173°C and the operation panel indicators are turned off except for the Energy Saver LED and the Power LED. There is only one energy saver level.

If the CPU receives the image print out command from an application (e. g. to print data from a PC), the fusing temperature rises to print the data. However, the operation panel stays off.

Return to Stand-by Mode

If one of the following is done, the machine returns to stand-by mode:

- The Clear Mode/Energy Saver Mode key is pressed
- Any key on the operation panel is pressed
- An original is placed in the ADF
- The ADF is lifted

The recovery time from energy saver to rise the fusing temperature is about **0 s**.

NOTE: The polygon motor needs 10 seconds to reach the correct speed.

Mode	Operation Switch	Energy Saver LED	Fusing Temp.	System +5 V	Main Power LED
Energy Saver	On	On	173°C	On	On

2.12.3 LOW POWER MODE

Entering Low Power Mode

The energy saver timer runs out after the end of a job.

NOTE: The energy saver timer cannot be cancelled.

What Happens in Low Power Mode

The fusing lamp drops to 143°C. The other conditions are the same as for energy saver (panel off) mode.

Return to Stand-by Mode

The machine returns to standby mode in exactly the same way as from energy saver (panel off) mode.

Recovery Time	Operation Switch	Energy Saver LED	Fusing Temp.	System +5 V	Main Power LED
About 40 seconds	On	On	143°C	On	On

2.12.4 OFF MODE

Off mode has two separate modes.

- Auto Off Mode (Sleep mode)
- Weekly Timer Off Mode

Off Mode (Sleep Mode)

Entering Off Mode

The machine enters off mode when one of the following is done.

- The auto off timer runs out after the end of a job
- The operation switch is pressed to turn the power off

What Happens in Off Mode

When the machine enters auto off mode, the operation switch turns off automatically. The fusing lamp and all dc supplies except +5 VE (+5 V for energy saver mode) turns off. At this time, only the main power LED is lit.

Operation Switch	Energy Saver LED	Fusing Temp.	System +5 V	Main Power LED
Off	Off	Room Temp. (Fusing lamp off)	Off	On

NOTE: Only +5 VE is supplied to the SICU.
LED (+5 V) is supplied to the operation panel from the SICU.

Returning to Stand-by Mode

The machine returns to stand-by mode when the operation switch is pressed.

Printing Incoming Data

If the machine receives print data from a PC, the fusing temperature rises to print the data. However, the operation panel stays off. After completing the print job, the machine returns to off mode (sleep mode).

Weekly Timer Off Mode

Weekly Timer

The user can program ‘on periods’ and ‘off periods’ for each day of the week.

Entering Weekly Timer Off Mode

The machine enters this mode when:

- The auto off timer runs out after the end of a job, and the weekly timer has already reached the start of an off period
- The operation switch is pressed to turn the power off, and the weekly timer has already reached the start of an off period
- The weekly timer reaches the start of an off period while in Off Mode.

What Happens in Weekly Timer Off Mode

When the machine enters this mode, the operation switch turns off automatically. The fusing lamp and all dc supplies except +5VE (+5V for energy saver mode) turn off. At this time, only the main power LED is lit.

Operation Switch	**Energy Saver LED**	**Fusing Temp.**	**System +5 V**	**Main Power LED**
Off	Off	Room Temp. (Fusing lamp off)	Off	On

NOTE: Only +5 VE is supplied to the SICU.
LED (+5 V) is supplied to the operation panel from the SICU.

Returning to Stand-by Mode

If a weekly timer code (Key Operator Code for Off Setting - UP mode) is set, the machine returns to stand-by mode when the operation switch is pressed and the weekly timer code is entered.

If a weekly timer code is not set, the machine returns to stand-by mode when the operation switch is pressed.

Printing Received Data

If no weekly timer code is set:

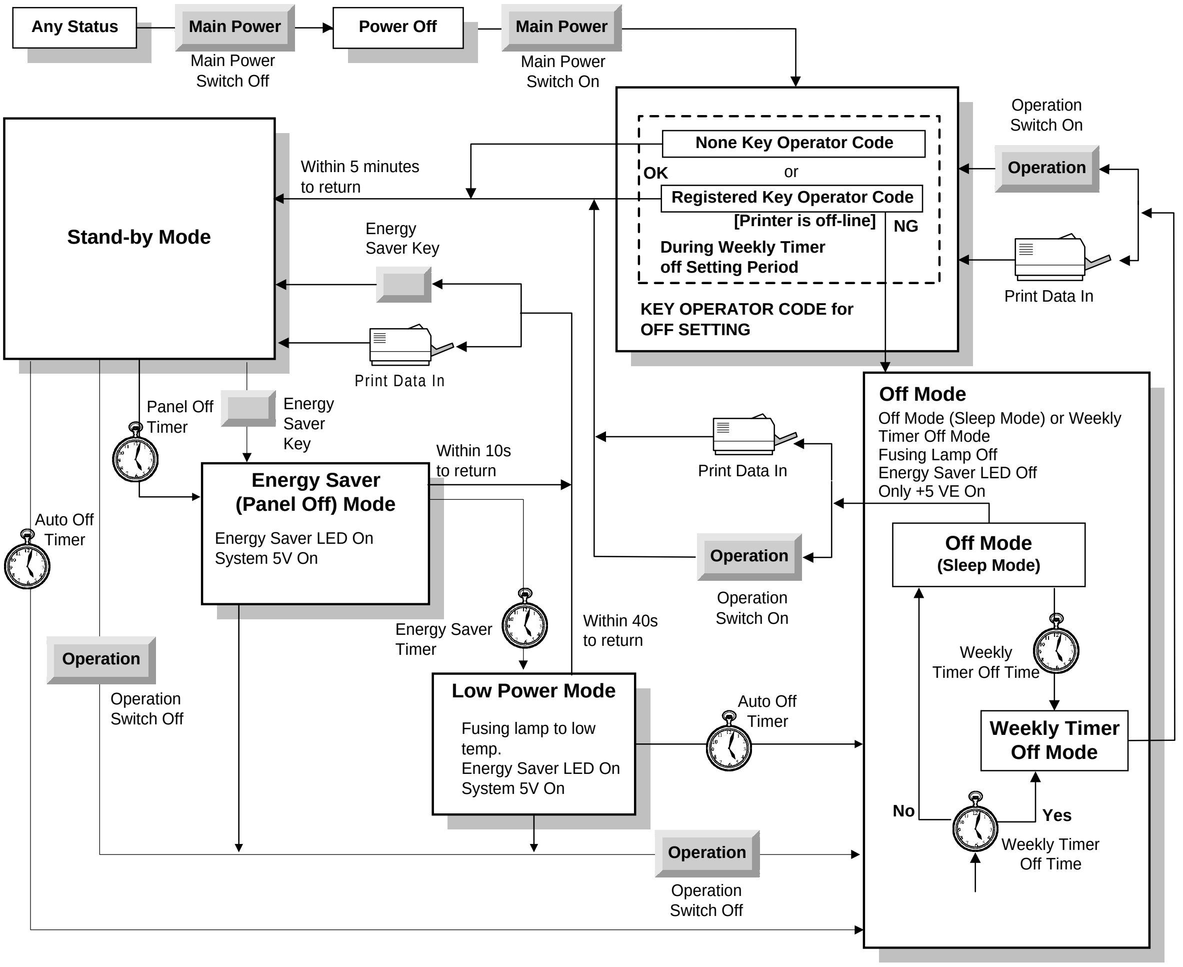
If the machine receives print data from a PC, the fusing temperature rises to print the data. However, the operation panel stays off. After completing the print job, the machine returns to weekly timer off mode.

If a weekly timer code is set:

When print data is sent from a PC, the printer stays off-line. After someone enters the weekly timer code, the printer will go on-line and print the data.

2.12.5 SUMMARY

For reference, the following flow chart summarizes the various energy saver modes, and their entry and exit conditions.


Any Status
Main Power
Main Power Switch Off
Power Off
Main Power
Main Power Switch On
None Key Operator Code
OK
or
Registered Key Operator Code
[Printer is off-line]
NG
During Weekly Timer off Setting Period
KEY OPERATOR CODE for OFF SETTING
Operation Switch On
Operation
Print Data In
Stand-by Mode
Within 5 minutes to return
Energy Saver Key
Print Data In
Panel Off Timer
Energy Saver Key
Energy Saver (Panel Off) Mode
Energy Saver LED On
System 5V On
Within 10s to return
Auto Off Timer
Operation
Operation Switch Off
Energy Saver Timer
Within 40s to return
Low Power Mode
Fusing lamp to low temp.
Energy Saver LED On
System 5V On
Print Data In
Operation
Operation Switch On
Auto Off Timer
Operation
Operation Switch Off
Off Mode
Off Mode (Sleep Mode) or Weekly Timer Off Mode
Fusing Lamp Off
Energy Saver LED Off
Only +5 VE On
Off Mode
(Sleep Mode)
Weekly Timer Off Time
Weekly Timer Off Mode
No
Yes
Weekly Timer Off Time

A294D649.WMF

Anti-condensation Heaters

All the anti-condensation heaters are unplugged. The tranfer anti-condensation (drum) heater is still on the machine. However, the tray heaters and optics anti-condensation heater are not mounted on the machine (option).

2.13 OTHERS

2.13.1 OPERATION UNIT

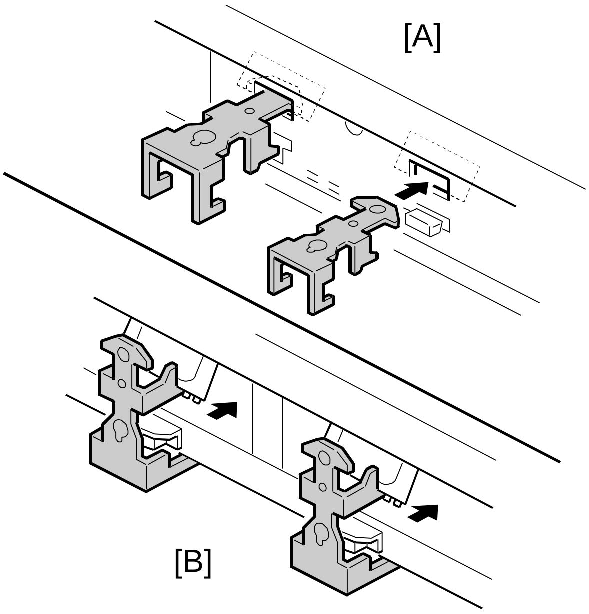
The operation unit consists of the LCD, touch panel, hard keys, back light (cold cathode tube) and the status indicator lamp. A 10.4 inch full color LCD (640 x 480 dot) is used for the operation panel. This operation panel is controlled by the LCD controller on the SICU board inside the copier.

The information on the LCD can be displayed in 256 colors using an 8-bit color scheme (3 bits for R, 3 bits for G, and 2 bits for B).

The status indicator on the top of the operation unit shows the condition of the machine as follows:

- Off: The machine is ready.
- Green (lights): Copying
- Green (blinks): Scanning originals
- Red (blinks): Toner is running out.
- Red (lights): The machine has a problem.

2.13.2 DOOR SAFETY SWITCH LOCK TOOLS



A294D942.WMF

There are two service tools are initially placed on the rear side of the left tandem tray. These tools can be used to hold the front door safety switches when the front doors are opened.

1. When the inner cover is installed, the front door safety switches can be held as shown in the illustration [A].
2. When the inner cover is removed, the front door safety switches can be held as shown in the illustration [B].

2.13.3 HDD CONTROL

This model has two hard disks to store image data. This allows scanned images to be stored to one hard disk while image data is printed from the other hard disk. Because of this, printing speed does not drop if printing and scanning are done at the same time.

There are two modes (selected with the ‘Memory Allocation’ UP mode) which determine how the hard disks are shared between normal copy jobs and copy server jobs. The initial setting is “Copier Priority” and the data for copy server jobs is stored only on HDD 1 (this is the disk at the front side).

The following table shows the capacity of the hard disks used for each function.

UP Setting for “Memory Allocation”	HDD 1 (Front)	HDD 2 (Rear)
Copier Priority	Copy Jobs: 0.82 GB Copy Server Jobs: 3.08 GB Printer Jobs: 0.20 GB	Copy Jobs: 3.35 GB Copy Server Jobs: Not used Printer Jobs: 0.76 GB
Max. Memory for Document Server	Copy Jobs: 1.23 GB Copy Server Jobs: 2.57 GB Printer Jobs: 0.31 GB	Copy Jobs: 1.23 GB Copy Server Jobs: 2.57 GB Printer Jobs: 0.31 GB

When a Copy Job is Done

Basically, the scanned image is stored on the hard disk that has the largest remaining capacity. (If the remaining capacity is the same, the image is stored in HDD 1.) If one hard disk is already being used for printing or while transporting image data from a hard disk to the CD-RW, the other hard disk is used to store new data regardless of the remaining capacity.

Even if the selected hard disk becomes full, data storage continues using the other hard disk. If both hard disks becomes full, data storage stops and a message is displayed on the screen.

When a Copy Server Job is Done

Initially, “Copier Priority” is selected for “Memory Allocation” in UP mode. In this setting, only HDD 1 is used for copy server jobs. If “Max. Memory for Document Server” is selected, HDD 1 and HDD 2 each have the same areas for normal copy jobs and copy server jobs. The hard disk with the greater remaining capacity is selected to store the image if neither hard disk is being used (same as for a copy job).

The image files stored in the hard disks are managed in the NVRAM on the SICU. When the NVRAM is replaced or a memory clear is done, all the copy server files are deleted.

If one of the hard disks is replaced or if SP4-911-1 (HDD 1 Media Check) or SP4-912-1 (HDD 2 Media Check) is performed, the file data in the NVRAM is updated and the deleted files (in the replaced HDD) will not be displayed.

Limitation when "Max. Memory for Document Server" is Selected

Magazine mode cannot be used for a copy server job if "Max. Memory for Document Server" is selected. This is because parts of a data file could be stored on separate hard disks, and the image data cannot be combined if that happens.

Machine Operation when Hard Disk(s) is Defective

If one of the hard disks is defective, copying is done using the other hard disk. There is no disabled function but the productivity will be reduced when image scanning is done during printing.

If both of the hard disks are defective, functions which need a hard disk (duplex, sort, next job, etc.) are disabled.

If HDD 1 is defective, copy server functions cannot be used in "Copier Priority" mode. An SC code is displayed when a copy server function is selected, but the machine can be operated if that function is not selected. If "Max. Memory for Document Server" is selected, copy server functions can be operated using the remaining hard disk.

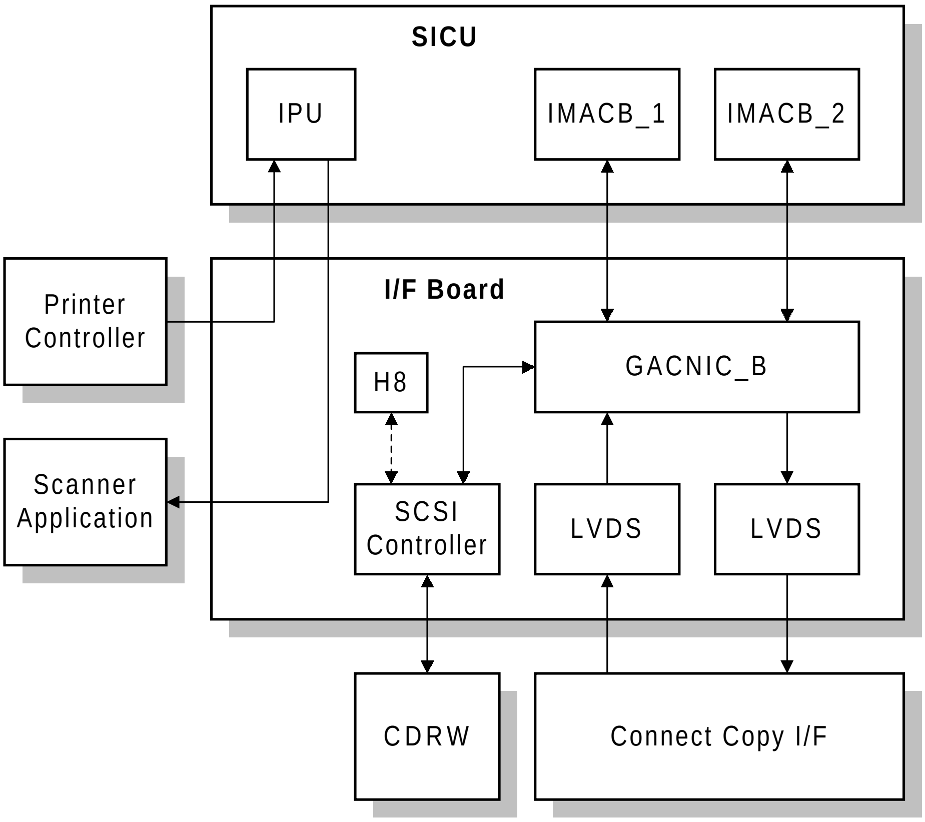
Stamp Function

Preset stamp data is stored in the hard disks in the factory. The data is stored in both of the hard disks, so that the data can be read regardless of which hard disk is used for other functions. When a user stamp is programmed, the stamp data is stored in both of the hard disks.

If SP4-911-1 (HDD 1 Media Check) or SP4-912-1 (HDD 2 Media Check) is performed, the preset stamp data and user stamp data are erased from both of the hard disks. (This is because the stamp data on each disk must be exactly the same, and if only one set of data is erased, it is possible that different data will become stored on each disk.) The stamp data must be reinstalled using a flash memory card after one of the hard disks is replaced. Refer to Stamp Data Installation in section 4.

2.13.4 DATA PATH THROUGH THE INTERFACE BOARD

When the connect copy kit, CD-ROM reader/writer, or printer controller is used, the image data are transferred through the interface board as shown in the diagram below.


SICU
IPU
IMACB_1
IMACB_2
I/F Board
Printer Controller
Scanner Application
H8
GACNIC_B
SCSI Controller
LVDS
LVDS
CDRW
Connect Copy I/F

A294D994.WMF

GACNIU_B:	An ASIC which handles the data transmission between the memories in the SICU and CD-ROM reader/writer or the connect copy interface.
LVDS:	A noise-resistant interface
IMACB:	AN ASIC which controls data memory
H8:	A CPU which controls the SCSI controller

3. INSTALLATION PROCEDURE

3.1 INSTALLATION REQUIREMENTS

3.1.1 ENVIRONMENT

1. Temperature Range: 10°C to 32°C (50°F to 89.6°F)
2. Humidity Range: 15% to 80% RH
3. Ambient Illumination: Less than 1,500 lux (do not expose to direct sunlight or strong light)
4. Ventilation: Room air should turn over at least 3 times per hour
5. Ambient Dust: Less than 0.10 mg/m^3 (2.7 x 10^{-6} oz/yd^3)
6. If the place of installation is air-conditioned or heated, do not place the machine where it will be:
   1) Subjected to sudden temperature changes
   2) Directly exposed to cool air from an air-conditioner
   3) Directly exposed to heat from a heater
7. Do not place the machine where it will be exposed to corrosive gases.
8. Do not install the machine at any location over 2,000 m (6,500 feet) above sea level.
9. Place the copier on a strong and level base.
10. Do not place the machine where it may be subjected to strong vibrations.

3.1.2 MACHINE LEVEL

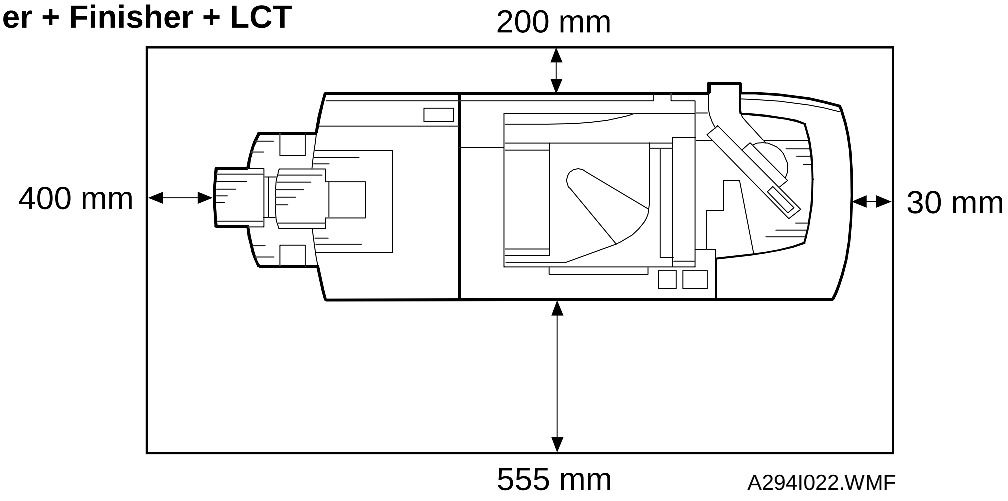
1. Front to back: Within 5 mm (0.2") of level
2. Right to left: Within 5 mm (0.2") of level

NOTE: The machine legs may be raised or lowered in order to level the machine. Set a carpenter’s level on the exposure glass.

3.1.3 MINIMUM SPACE REQUIREMENTS

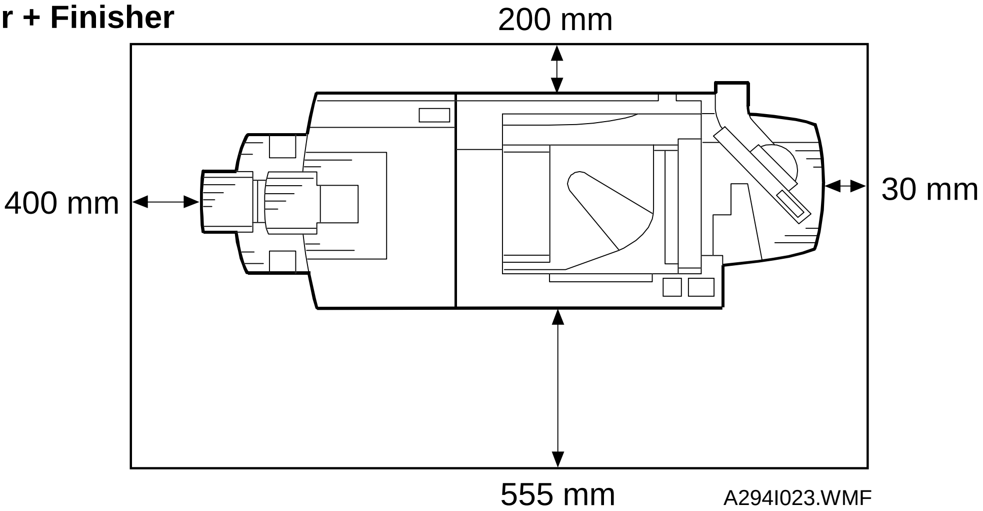
Place the copier near the power source, providing clearance as shown below. The same amount of clearance is necessary when optional equipment is installed.

Copier + Finisher + LCT



A294I022.WMF

Copier + Finisher



A294I023.WMF

3.1.4 POWER REQUIREMENTS

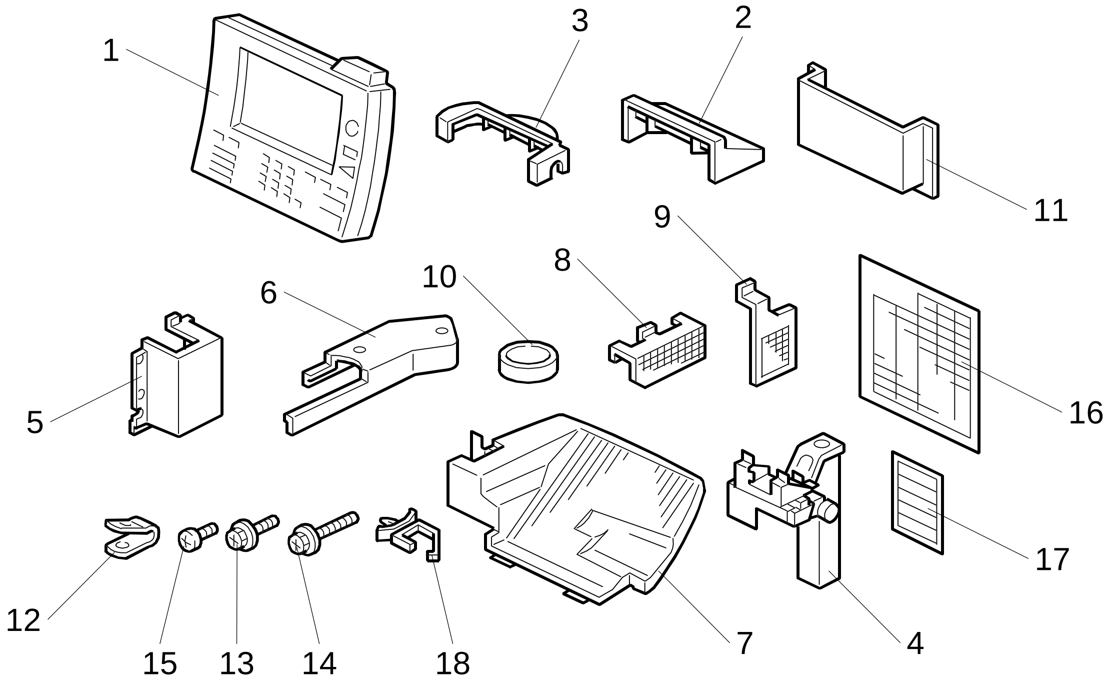
⚠CAUTION

1. **Make sure the plug is firmly inserted in the outlet.**
2. **Avoid multi-wiring.**
3. **Do not set anything on the power cord.**

1. Input voltage level: 220 ~ 240 V, 50/60 Hz: More than 16 A
2. Permissible voltage fluctuation: 10%

3.2 COPIER (A294)

3.2.1 ACCESSORY CHECK



A294I001.WMF

Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Operation Unit	1
2. Upper Cover - Operation Unit Holder	1
3. Lower Cover - Operation Unit Holder	1
4. Operation Unit Arm	1
5. Right Arm Cover	1
6. Arm Upper Cover	1
7. ADF Exit Tray	1
8. Optics Dust Filter	1
9. Dust Filter	1
10. Leveling Shoe	4

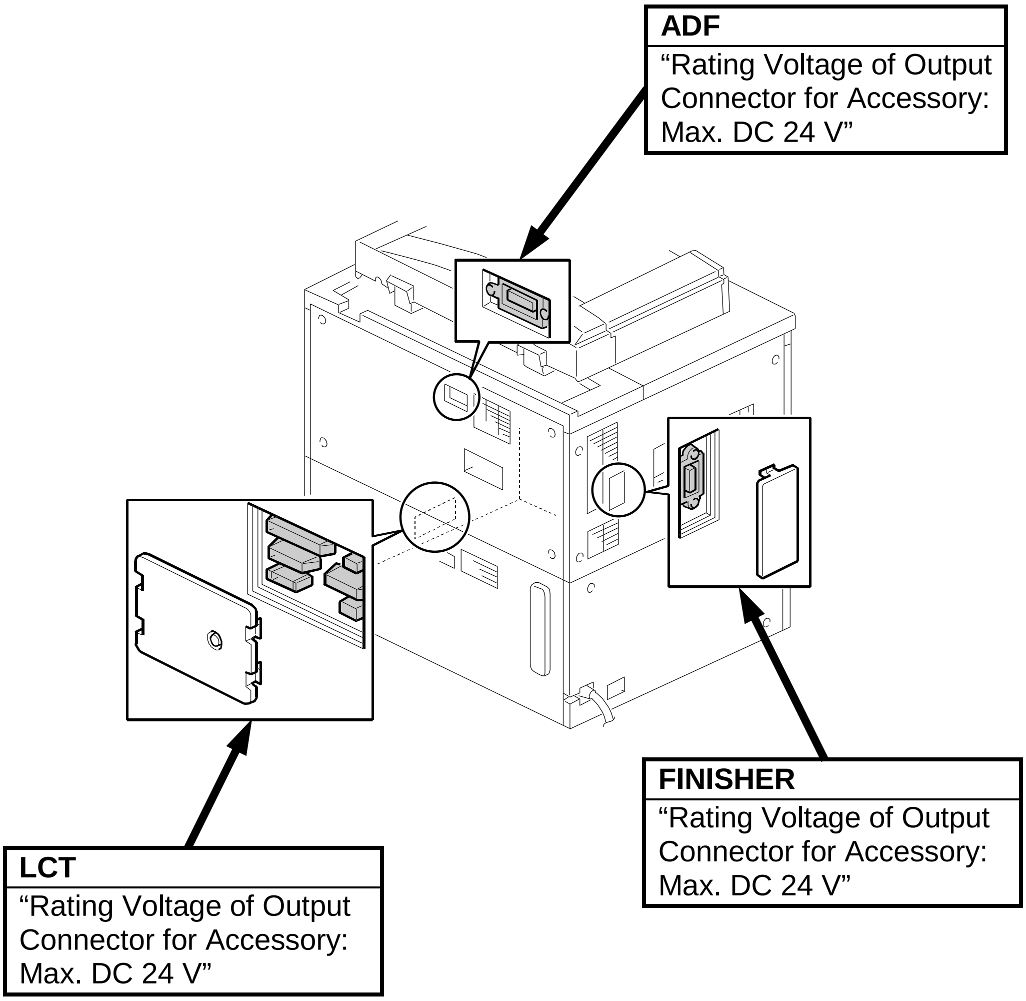
11. Operating Instruction Holder	1
12. Metal Cable Clamp	1
13. Tapping Screw - M4 x 8	25
14. Tapping Screw - M4 x 12	2
15. Philips Pan Head Screw - M4 x 6	1
16. Paper Size Decal	1
17. Decal – Face Up	1
18. Nylon Clamp	1
19. Model Name Plate (-10, -15, -22 machines) – not shown	1
20. Operating Instructions – not shown	2

3.2.2 INSTALLATION PROCEDURE

⚠**CAUTION**

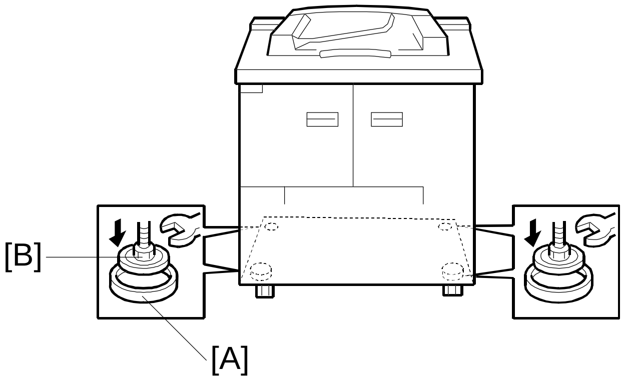
Rating Voltage for Peripherals

Make sure to plug the cables into the correct sockets.

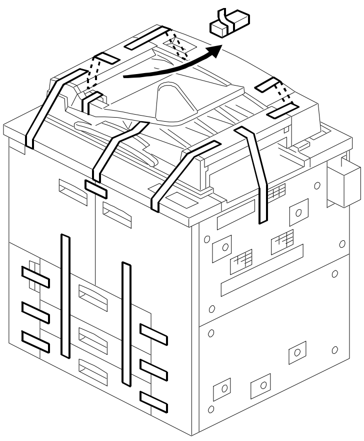

ADF
"Rating Voltage of Output Connector for Accessory: Max. DC 24 V"
FINISHER
"Rating Voltage of Output Connector for Accessory: Max. DC 24 V"
LCT
"Rating Voltage of Output Connector for Accessory: Max. DC 24 V"

A294I025.WMF

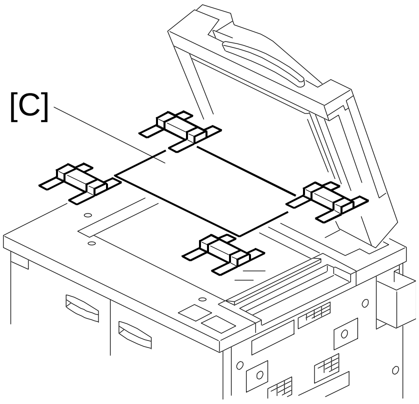
NOTE: Since the installation procedure is not packed with the copier as an accessory, always bring this manual with you.



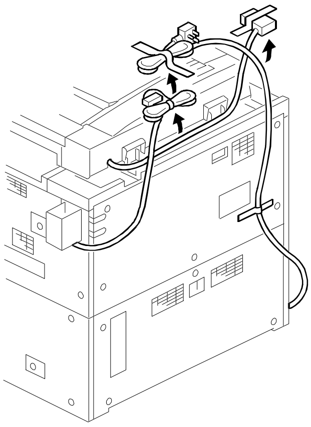
A294I024.WMF



A294I006.WMF



A294I005.WMF



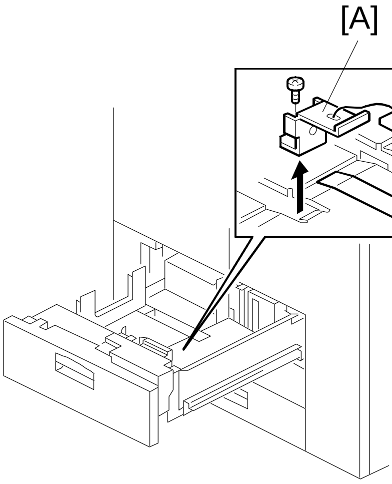
A294I004.WMF

⚠CAUTION

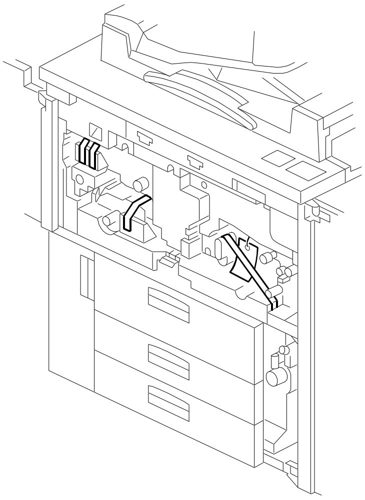
Keep the power cord unplugged when starting the following procedure.

NOTE: 1) Keep the shipping retainers after installing the machine. They will be reused if the machine is moved to another location in the future.
2) Insert the leveling shoes [A] under the leveling feet [B], and level the machine before starting the installation.

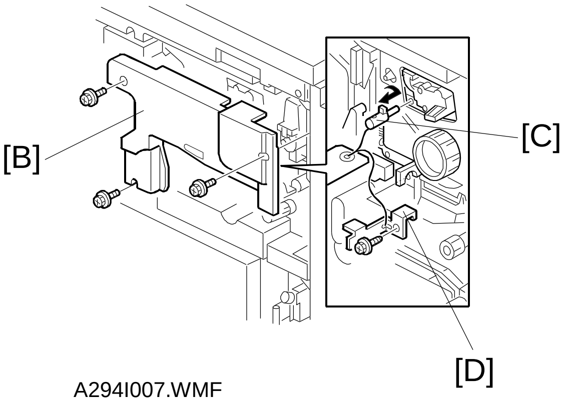
1. Remove all strips of tapes as shown above.
2. Keep the factory data sheet [C] for future use.



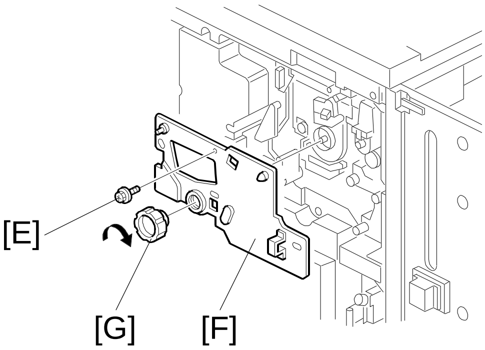
A294I003.WMF



A294I002.WMF

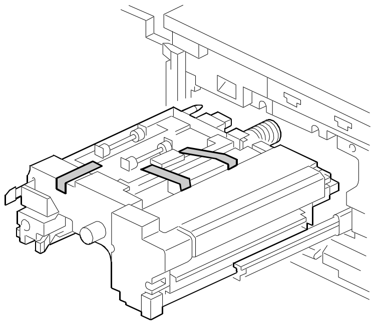


A294I007.WMF

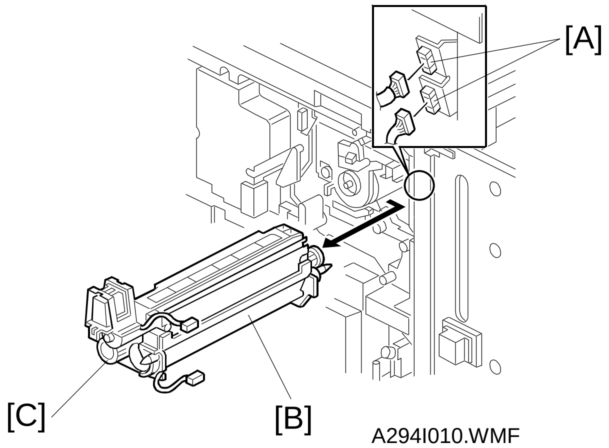


A294I009.WMF

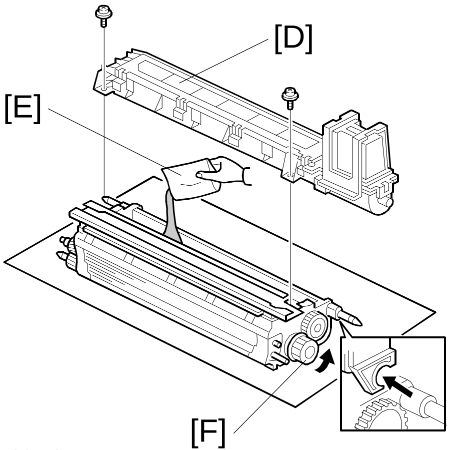
3. Pull out the tandem tray and remove the tray lock plate [A] (1 screw) and 1 cushion between trays.
4. Pull out the foam cushion between trays 2 and 3.
5. Open the front door and remove the strips of tape.
6. Remove the inner cover [B] (3 screws).
7. Remove the blade release pin [C] and the transfer belt lock plate [D] (1 screw).
8. Remove the screw [E] that holds the drum stay [F].



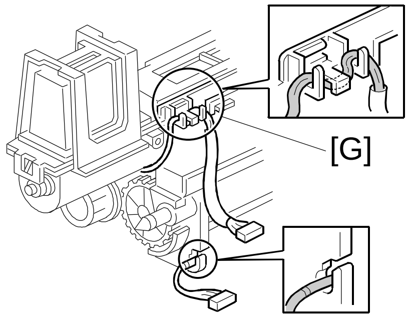
A294R520.WMF



A294I010.WMF

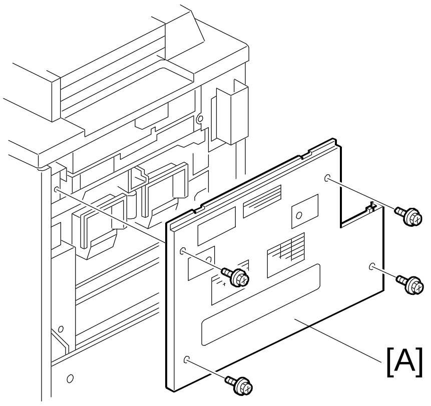


A294I011.WMF

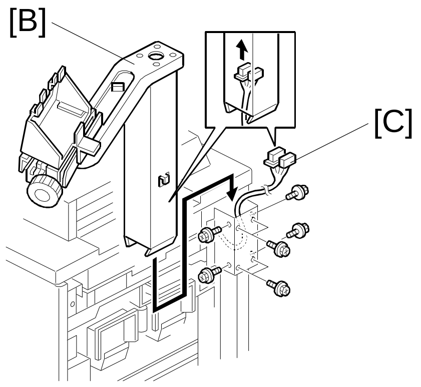


A294I304.WMF

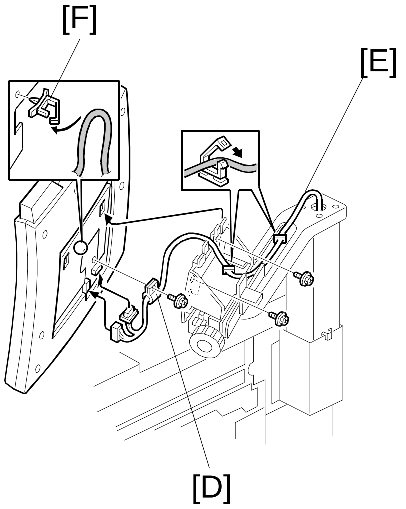
9. Remove the drum stay knob [G] and the drum stay (turn the knob clockwise to remove it).
10. Remove the tape and foam cushion from fusing unit.
11. Disconnect the two connectors [A].
12. Pull out the development unit [B] as shown.
    NOTE: 1) To prevent scratches on the drum, push the development unit to the right while pulling it out.
    2) When pulling out the development unit, do not pull the knob [C].
    3) Place the development unit on a clean sheet of paper, to prevent foreign matter from being attracted to the sleeve rollers.
13. Remove the toner hopper [D] (2 screws).
14. Pour in one pack of developer [E] while turning the knob [F]. Distribute the developer evenly along the development unit.
15. Attach the toner hopper to the development unit.
16. Install the development unit in the machine and connect two connectors.
    NOTE: When reinstalling the development unit, confirm that the harness layout is as shown [G].
17. Attach the drum stay and attach the drum stay knob and one screw.
18. Reinstall the inner cover.



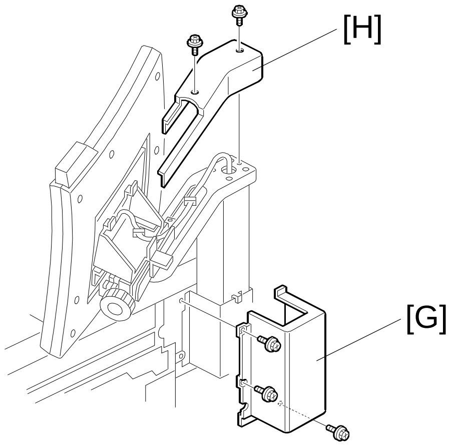
A294I012.WMF



A294I013.WMF

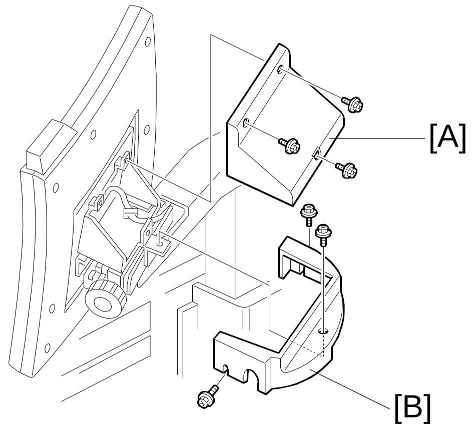


A294I014.WMF



A294I015.WMF

19. Remove the right upper cover [A] (4 screws).
20. Pass the harness through the operation unit arm [B], and install the arm as shown (9 screws).
21. Connect the 2 connectors [C] of the operation unit.
22. Secure the harness clamp [D] on the operation unit (one M4 x 6 pan head screw). Pass the harness [E] through the clamps as shown. Then install the operation unit on the arm (4 screws).
23. Set the nylon clamp [F].
24. Install the right arm cover [G] (3 screws) and the arm upper cover [H] (2 screws).



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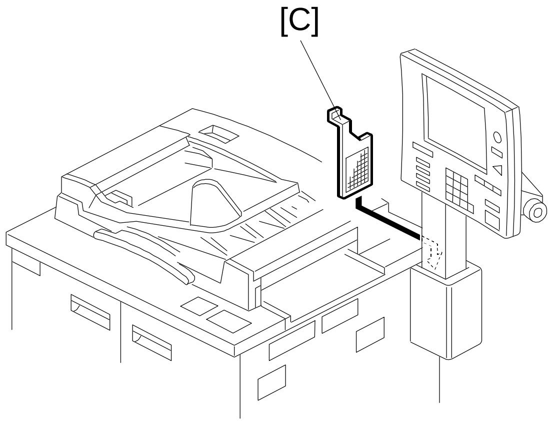
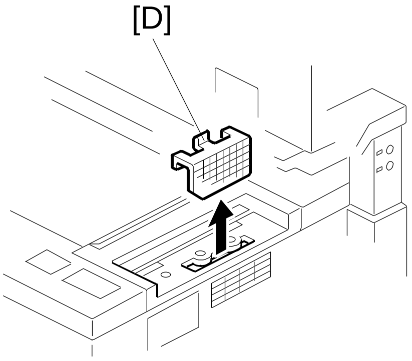
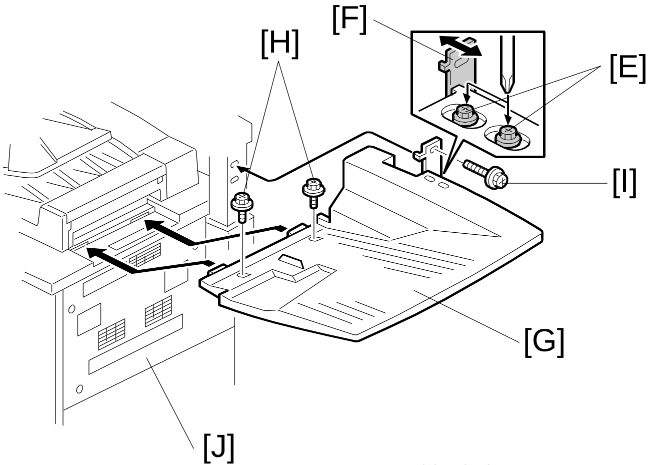


A294I017.WMF



A294I506.WMF



A294I018.WMF

25. Install the upper [A] (3 screws) and lower [B] (3 screws) covers of the operation unit holder.
26. Set the dust filter [C] as shown.
27. Set the optics dust filter [D] as shown.
28. Loosen the two screws [E] of the bracket [F]. Then set the original exit tray [G].
29. Secure the original exit tray with 2 - M4 x 12 screws [H] and 1 M4 x 8 screw [I].
    NOTE: Do not use these M4 x 12 screws for securing the other exterior covers. They might hit a moving part inside the machine and damage that part.
30. Secure the bracket [F] to the operation unit arm with screw [I]. Then retighten the two screws [E] to secure the bracket to the original exit tray.
31. Reinstall the right upper cover [J].
32. Plug in the power cord and turn the main switch on. Put toner bottle(s) in the toner bank.

33. When the machine is ready, enter SP mode as follows:
    1) Press the clear modes key.
    2) Enter “107”.
    3) Hold down the clear/stop key for more than 3 seconds.
34. Press “Copy SP” on the LCD, and perform the TD initial setting as follows:
    1) Select SP No. 2-801
    2) Press the “Start key” on the LCD.

    NOTE: This SP mode performs the TD initial setting. It will stop automatically in about 1 minute.
35. Supply toner from the toner bank to the toner hopper as follows:
    1) Select SP2-207-2 (Toner Bank Toner Supply)
    2) Press the “Start key” on the LCD.

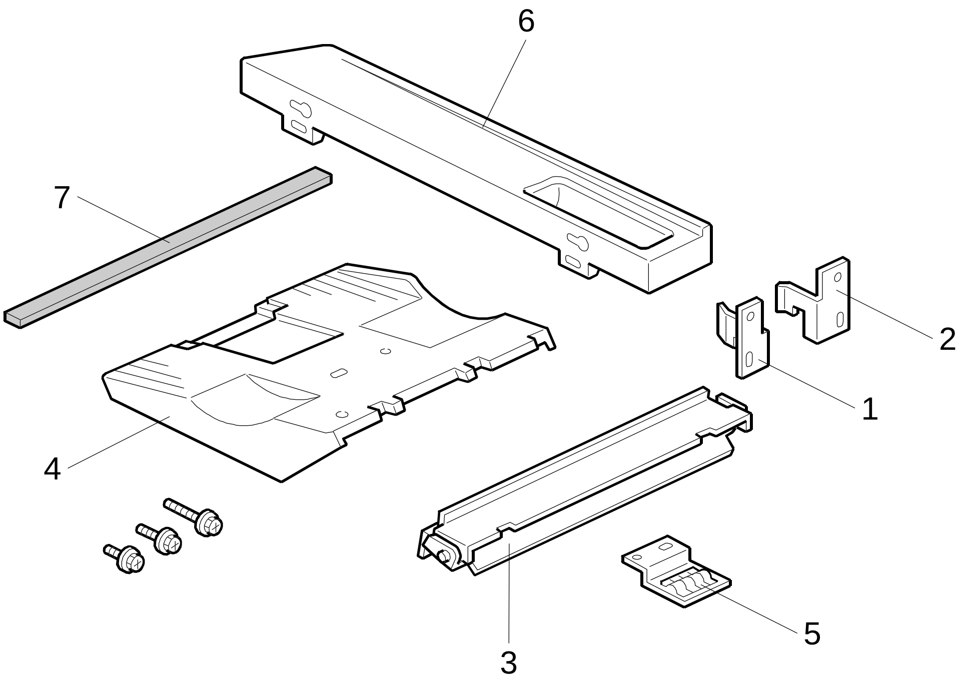
    NOTE: By performing this SP mode, the toner is distributed into the toner hopper and the toner transport path. It will stop automatically in about 7 minutes. If SP2-207-2 fails after SP2-801 is completed (an SC code is displayed), repeat only SP2-207-2 again.
36. Change the paper size for all paper trays to suit the customer’s request.
37. Attach the appropriate paper size decals, which are included as accessories, to each paper tray.
38. Attach the face-up decal to the ADF.
39. Check copy quality and machine operation.

NOTE: The first time that the ADF is used, dust on the ADF transport belt will transfer to the exposure glass. To remove this dust, perform SP6-009 (DF Free Run) for 3 minutes, and then remove the dust on the exposure glass if necessary.

40. Initialize the electrical total counter using SP7-825, if required.

3.3 FINISHER INSTALLATION (B302)

3.3.1 ACCESSORY CHECK

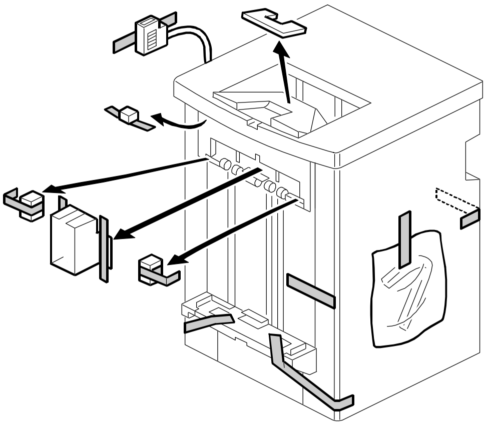


B302I001.WMF

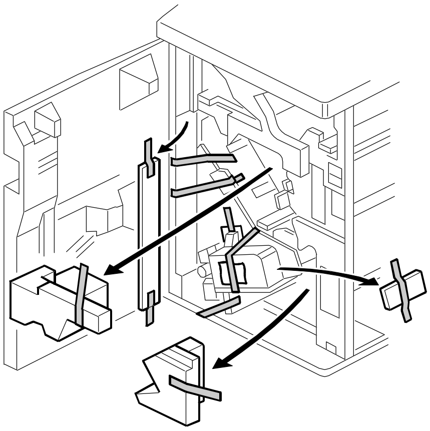
Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Front Joint Bracket	1
2. Rear Joint Bracket	1
3. Entrance Guide Plate	1
4. Shift Tray	1
5. Grounding Plate	1
6. Table Extension	1
7. Cushion	1
8. Tapping Screw - M3 x 6	4
9. Tapping Screw - M3 x 8	4
10. Tapping Screw - M4 x 14	4
11. Tapping Screw - M4 x 8	2
12. Installation Procedure	1

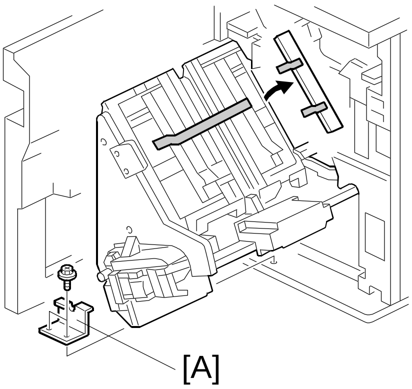
3.3.2 INSTALLATION PROCEDURE



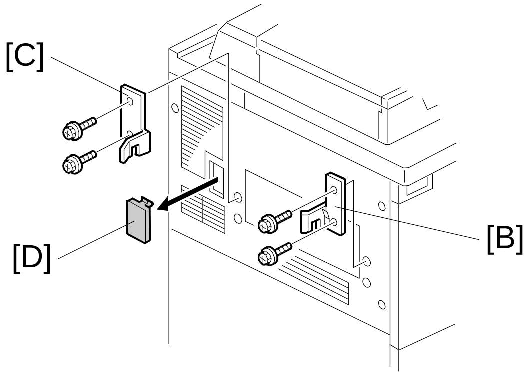
B302I002.WMF



B302I003.WMF



B302I014.WMF

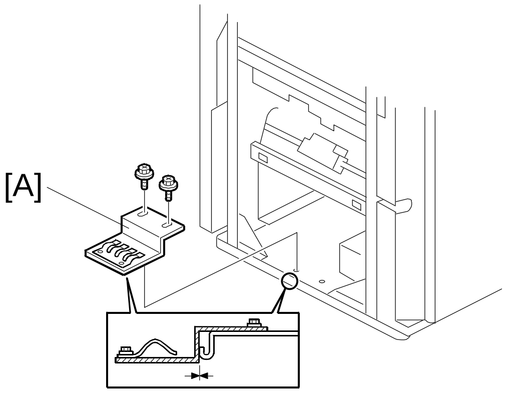


B302I019.WMF

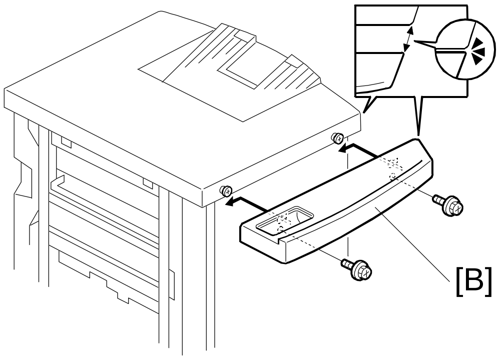
⚠CAUTION

Unplug the machine power cord before starting the following procedure.

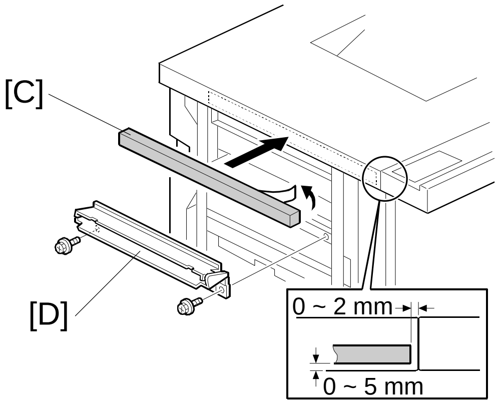
1. Unpack the finisher and remove the tapes and shipping retainers as shown above.
2. Open the front door and remove the shipping retainers. Remove the bracket [A] (2 screws) securing the stapler unit.
3. Install the front joint bracket [B] and rear joint bracket [C] (two M4 x 14 screws each) on the left side of the copier.
4. Remove the connection plate [D].



B302I004.WMF

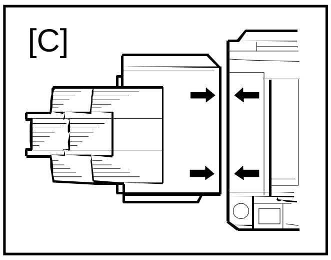


B302I005.WMF

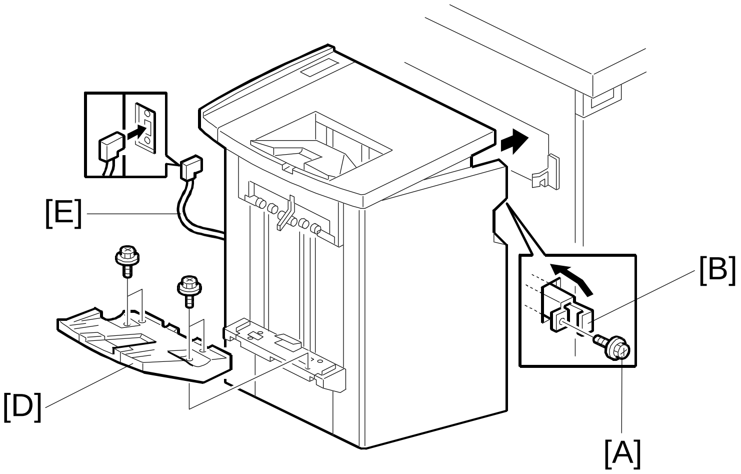


B302I107.WMF

5. Install the grounding plate [A] (two M3 x 6 screws).
   NOTE: Set the grounding plate so that there is no gap between the grounding plate and the bottom frame of the finisher (as shown).
6. Install the rear tray as shown [B] (two M4 x 8 screws).
   NOTE: The edge of the rear tray should be aligned with the edge of the finisher (as shown).
7. Attach the cushion [C] to the right side of the upper cover.
8. Install the entrance guide plate [D] (two M3 x 6 screws).



B302I534.WMF

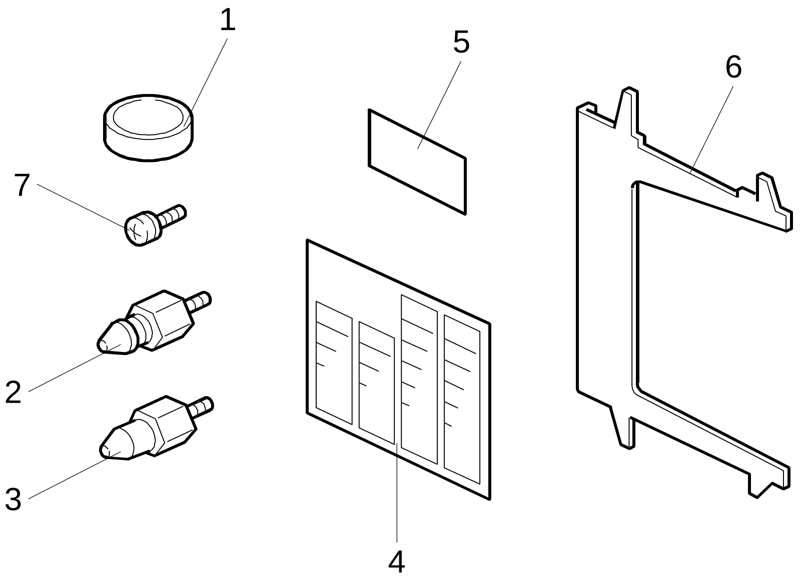


B302I006.WMF

9. Open the front door of the finisher, and remove the screw [A] which secures the locking lever. Then pull the locking lever [B].
10. Align the finisher on the joint brackets, and lock it in place by pushing the locking lever [B].
    NOTE: Before securing the locking lever, make sure that the top edges of the finisher and the copier are parallel from front to rear as shown [C].
11. Secure the locking lever (1 screw) and close the front door.
12. Install the shift tray [D] (four M3 x 8 screws).
13. Connect the finisher cable [E] to the copier.

3.4 LCT INSTALLATION (B303)

3.4.1 ACCESSORY CHECK

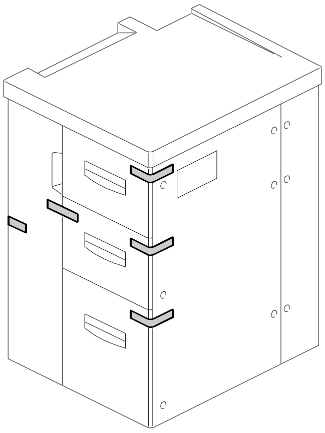


B303I001.WMF

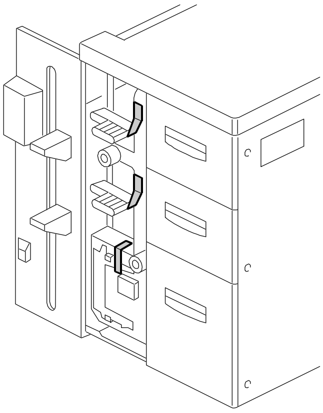
Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Leveling Shoe	3
2. Upper Joint Pin	2
3. Lower Joint Pin	2
4. Decal - Paper Size	1
5. Decal - Tab Paper End Fence	1
6. Tab Paper End Fence	1
7. Philips Screw - M4 x 8	1
8. Installation Procedure (English)	1

3.4.2 INSTALLATION PROCEDURE



B303I002.WMF



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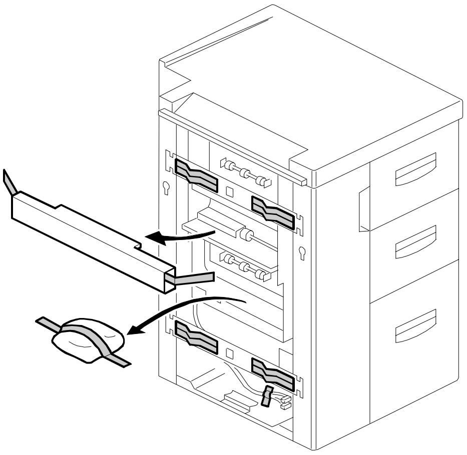
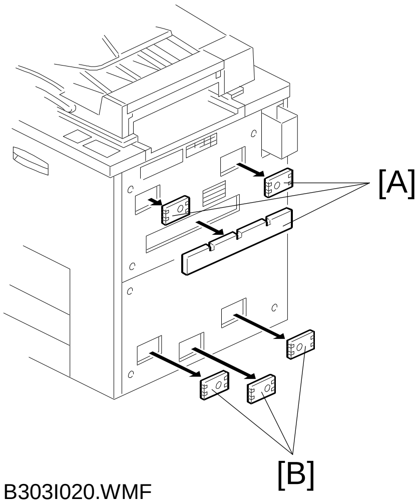


B303I003.WMF

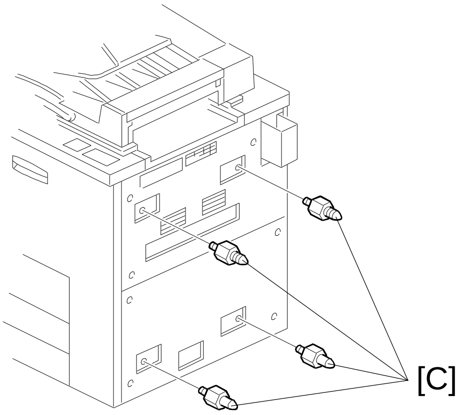
⚠CAUTION

Unplug the power cord before starting the following procedure.

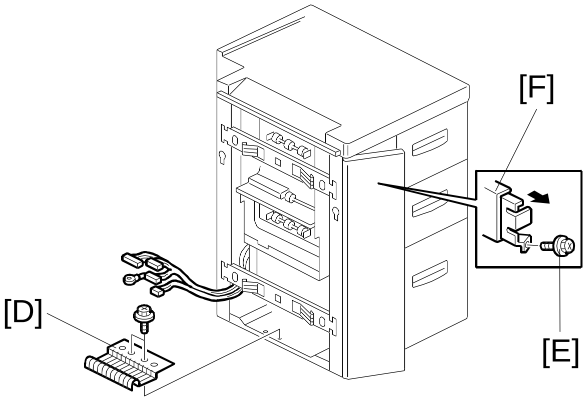
1. Remove the strips of tape on the covers (shown in the top position of the illustration).
2. Open the LCT left door and remove the strips of tape holding the levers.



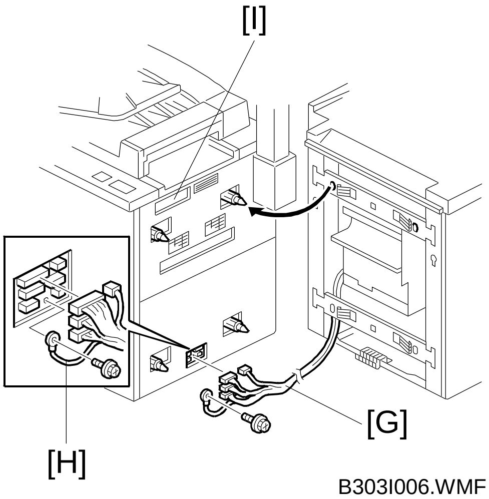
B303I020.WMF



B303I021.WMF



B303I005.WMF

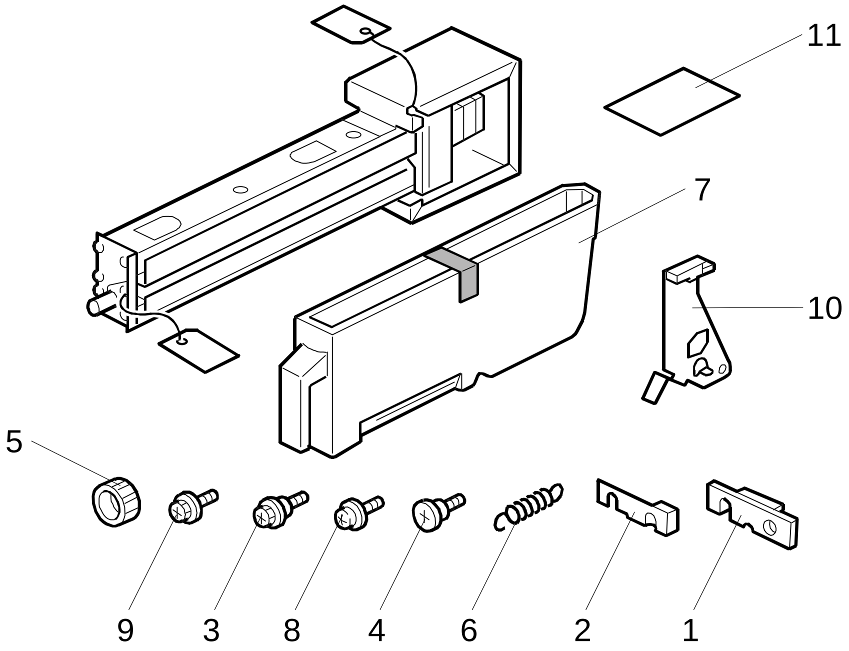


B303I006.WMF

3. Remove the three small covers [A] from the upper right side cover.
   NOTE: Small cover [I] can be removed at this time, to facilitate software upgrade using a flash card.
4. Remove the three small covers [B] from the lower right side cover.
5. Install the four joint pins [C] on the right side of the copier. The pins with slots in them should be used for the upper right side cover.
6. Remove the two screws that secure the grounding plate [D]. Turn the plate 180 degrees (so that left becomes right, and vice-versa) and secure it with the two screws.
7. Remove the screw [E], which secures the locking lever [F]. Slide the locking lever toward you (about 1/2 inch).
8. Connect the four connectors [G] and secure the grounding wire [H] (1 screw).
9. Align the LCT on the joint pins, and lock it in place with the locking lever.
10. Insert the leveling shoes under the leveling feet and level the LCT.

3.5 PUNCH UNIT INSTALLATION (A812)

3.5.1 ACCESSORY CHECK

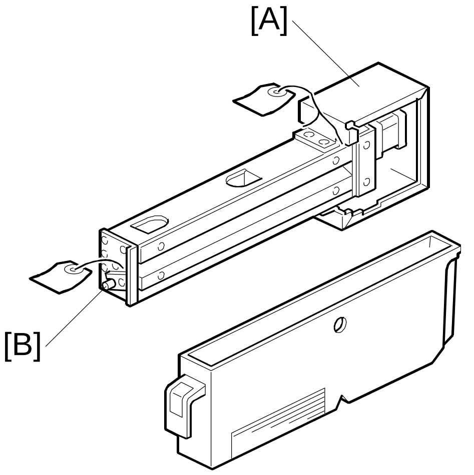


A812I101.WMF

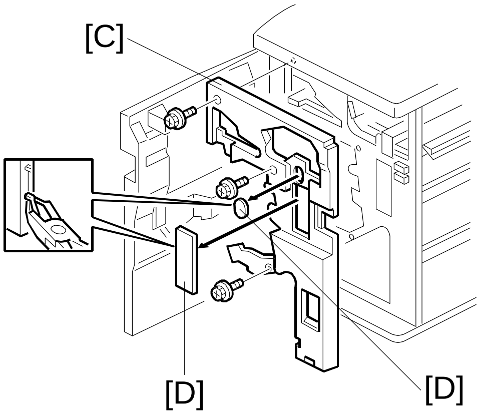
Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Spacer - 2 mm	1
2. Spacer - 1 mm	2
3. Stepped Screw - Short	1
4. Stepped Screw - Long	1
5. Punch Unit Knob	1
6. Spring	1
7. Hopper	1
8. Tapping Screw - M4 x 10	2
9. Screw with Flat Washer - M4 x 6	1
10. Sensor Bracket	1
11. Punch Position Decal	1

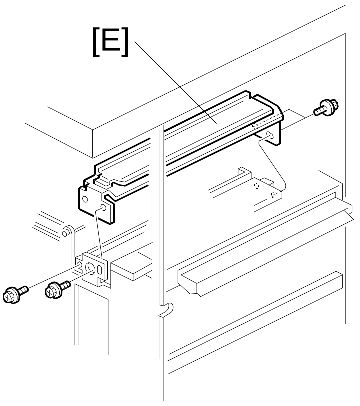
3.5.2 PUNCH UNIT INSTALLATION



A812I500.WMF



A812I007.WMF



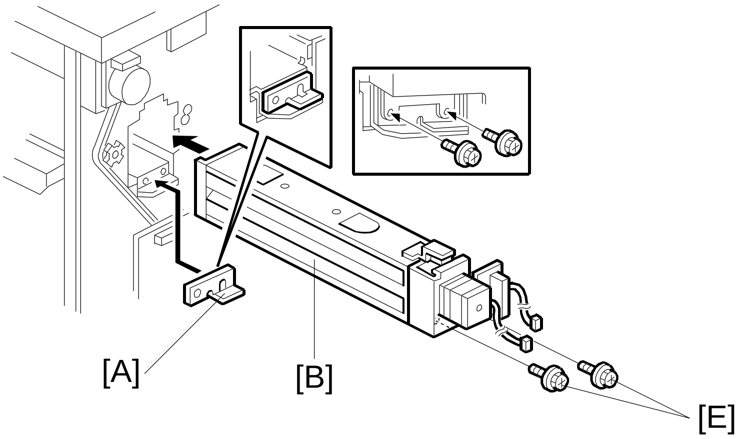
A812I008.WMF

⚠CAUTION

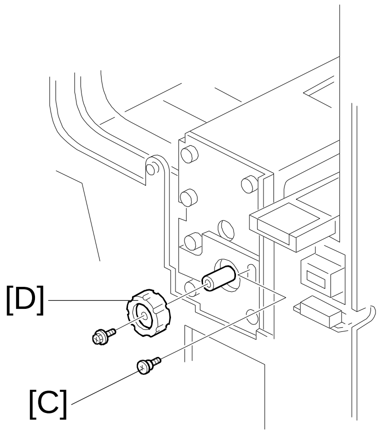
Unplug the copier power cord and remove the finisher from the copier before starting the following procedure.

Unpack the punch unit and remove the shipping retainers [A] (4 screws) and [B] (1 screw)

1. Remove the inner cover [C] of the finisher and remove the caps [D].
2. Remove the rear cover of the finisher (2 screws) and remove the transport guide plate [E] (4 screws).

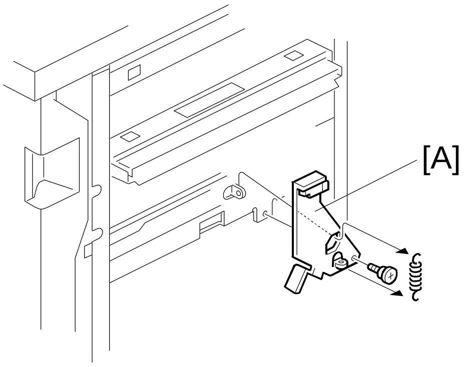


A812I010.WMF

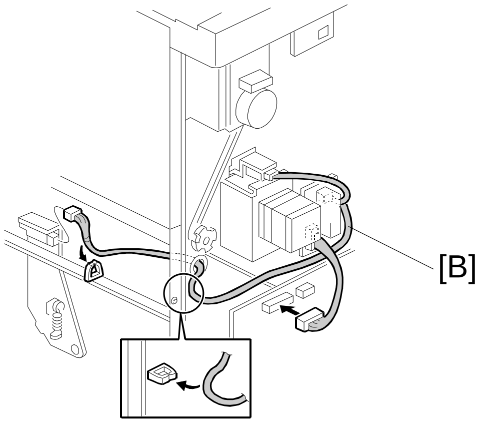


A812I011.WMF

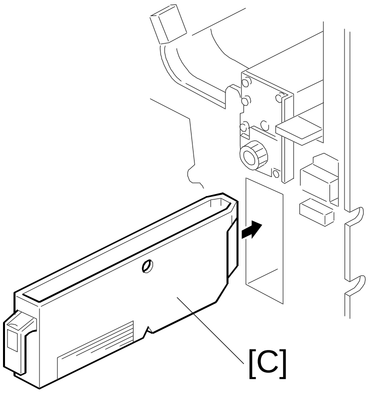
3. Install the spacer [A] (thickness = 2 mm).
   NOTE: There are three spacers in the accessory box. Do not lose the other two spacers (1 mm), because they are used for adjusting the punch hole position.
4. Reinstall the inner cover.
5. Install the punch unit [B] and secure it with a long stepped screw [C].
6. Install the punch unit knob [D] (1 screw).
7. Secure the rear of the punch unit (2 screws [E]).



A812I009.WMF



A812I012.WMF

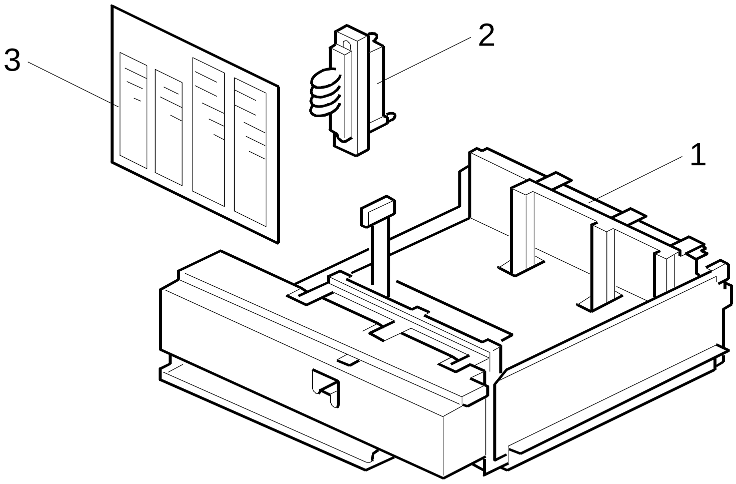


A812I013.WMF

8. Install the sensor bracket [A] (1 short stepped screw, 1 spring).
9. Connect the cables [B] as shown.
10. Slide the hopper [C] into the finisher.
11. Reassemble the finisher and attach it to the copier. Then check the punch unit operation.

3.6 A3/DLT TRAY (B331)

3.6.1 ACCESSORY CHECK

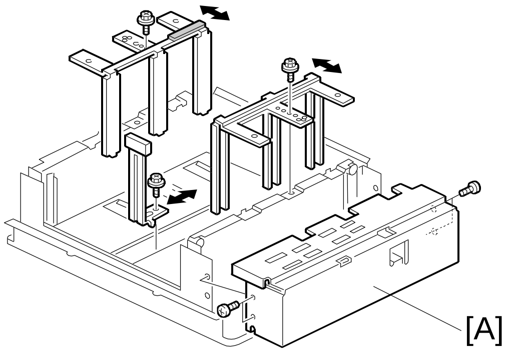


B331I001.WMF

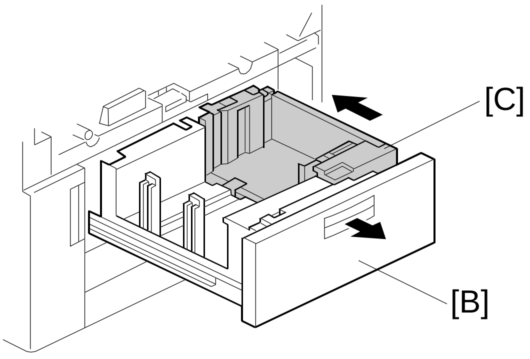
Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. A3/DLT Tray	1
2. Short Connector	1
3. Paper Size Decal	1

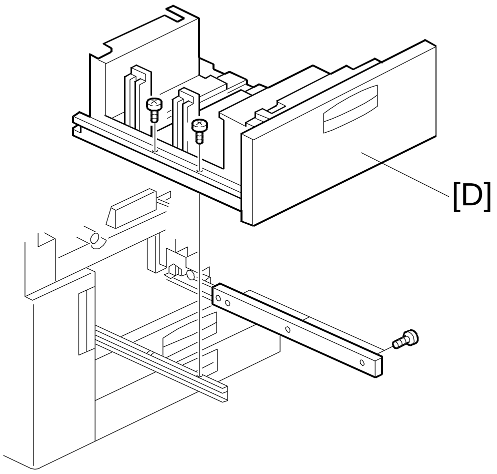
3.6.2 INSTALLATION PROCEDURE



B331I006.WMF



B331I707.WMF



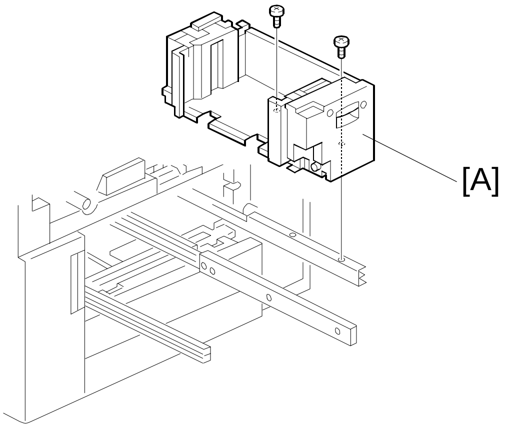
B331I708.WMF

⚠CAUTION

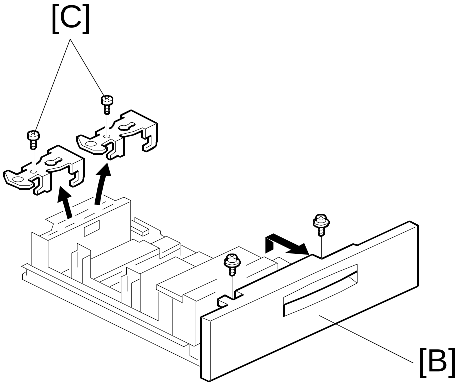
Unplug the machine before starting the following procedure.

NOTE: If necessary, remove the front frame [A] (4 screws) and change the side fence positions (1 screw each).

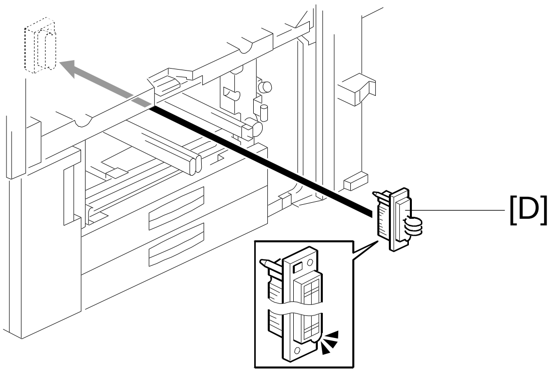
1. Open the front cover.
2. Draw out the tandem feed tray [B] fully to separate the right tandem tray [C] from the left.
3. Push in the right tandem tray.
4. Remove the left tandem tray [D] (5 screws).



B331I709.WMF

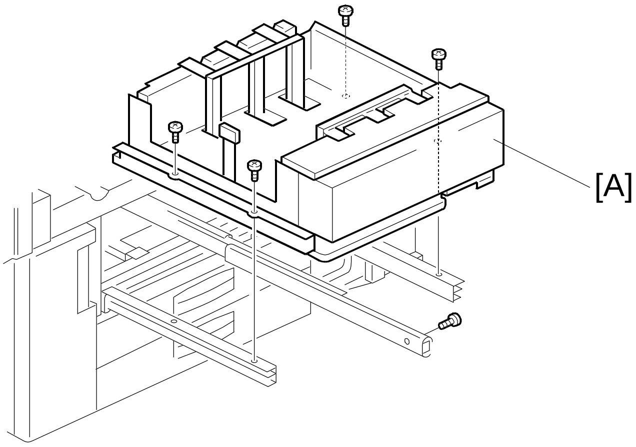


B331I002.WMF

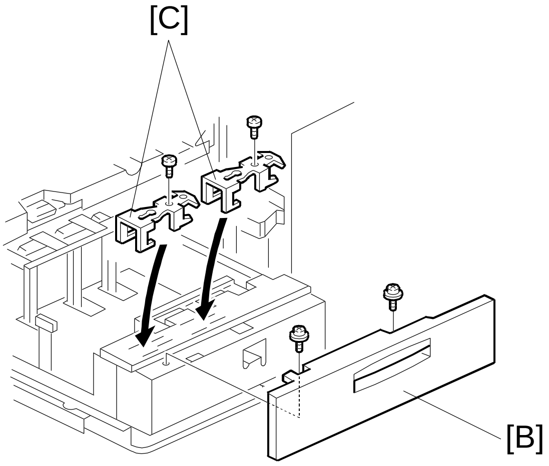


B331I003.WMF

5. Remove the right tandem tray [A] (2 screws).
6. Remove the front cover [B] (2 screws).
7. Remove the safety switch holders [C] (1 screw each).
8. Connect the short connector [D] to the terminal for the right tandem tray as shown.



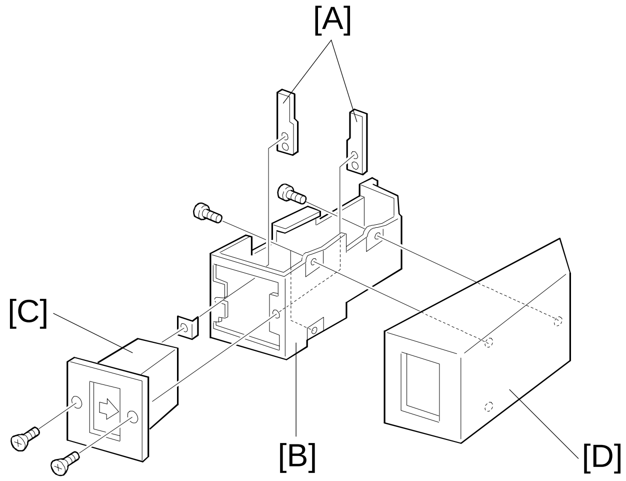
B331I004.WMF



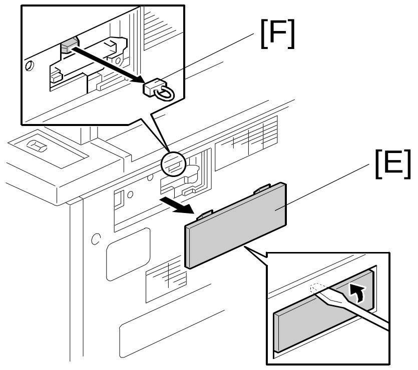
B331I005.WMF

9. Install the A3/DLT tray [A] using the screws removed in steps 4 and 5.
10. Install the front cover [B] and safety switch holders [C] removed in steps 6 and 7.
11. Access SP5-019-001, and change the paper size setting to the size required by the user.

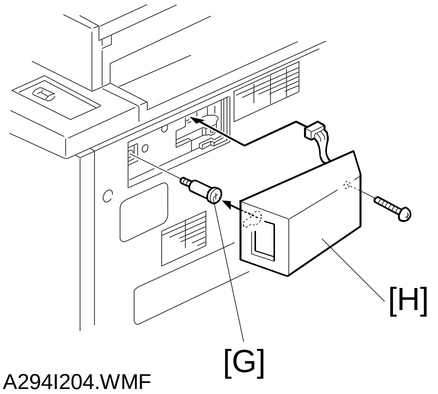
3.7 KEY COUNTER INSTALLATION



A294I532.WMF



A294I203.WMF



A294I204.WMF

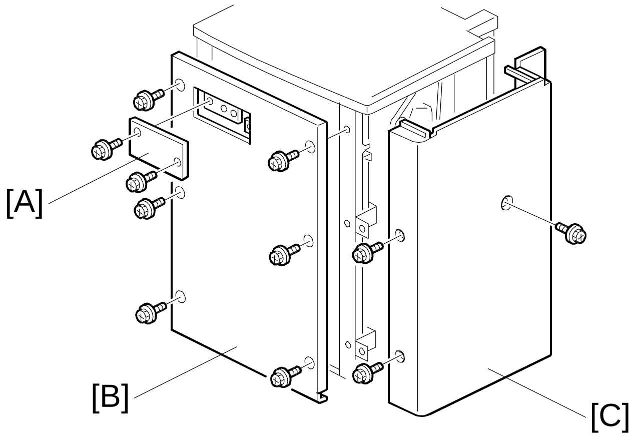
Common Steps

1. Hold the key counter plates [A] on the inside of the key counter bracket [B] and insert the key counter holder [C].
2. Secure the key counter holder to the bracket (2 screws).
3. Attach the key counter cover [D] (2 screws).
4. Remove the small cover [E] on the right side of the copier as shown.
5. Remove the jumper connector [F].

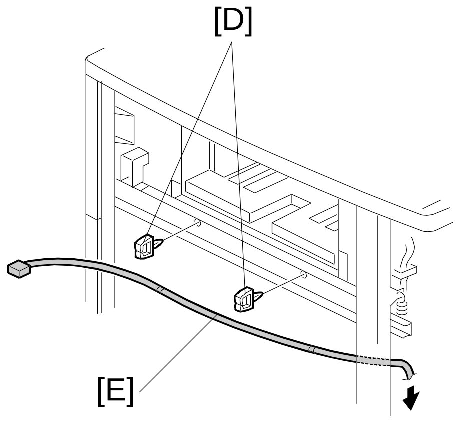
If the optional LCT is not installed:

The following steps 6 to 8 are for installing the key counter without the optional LCT. If the LCT is installed, skip steps 6 to 8, and go to step 9.

6. Install the stepped screw [G].
7. Install the key counter assembly [H] (1 screw).
8. Instruct the user’s key operator to enable the key counter with the user tools (User Tools – System Settings – Count Manager – Key Counter).



A294I205.WMF



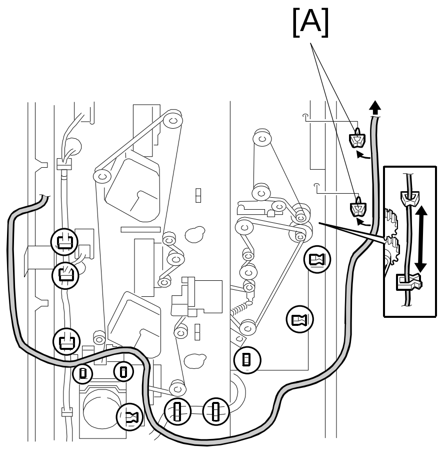
A294I206.WMF

If the optional LCT is installed:

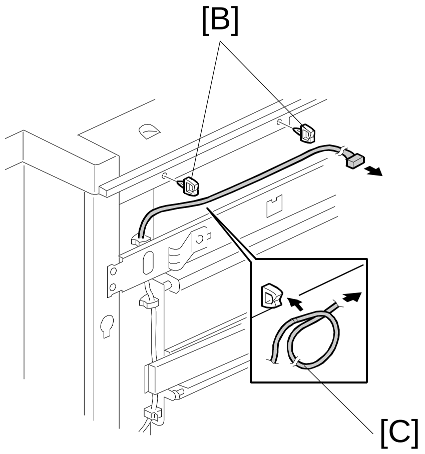
The following steps are required when the key counter is installed with the optional LCT.

NOTE: The extension cable is required to install the key counter with the LCT. The cable is supplied with 6 clamps as a service part.

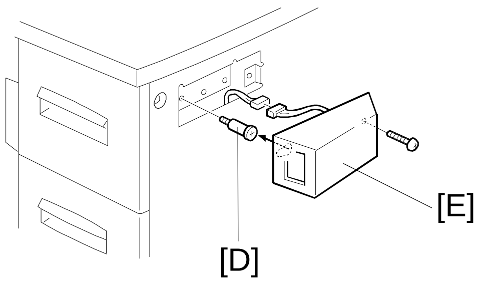
9. Remove the small cover [A] (2 screws) on the LCT right cover.
10. Remove the LCT right cover [B] (6 screws) and rear cover [C] (3 screws).
11. Install 2 clamps [D] on the right side of the LCT, then set the cable [E] in the clamps.



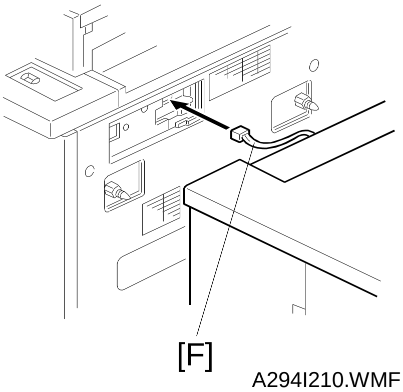
A294I207.WMF



A294I208.WMF



A294I209.WMF



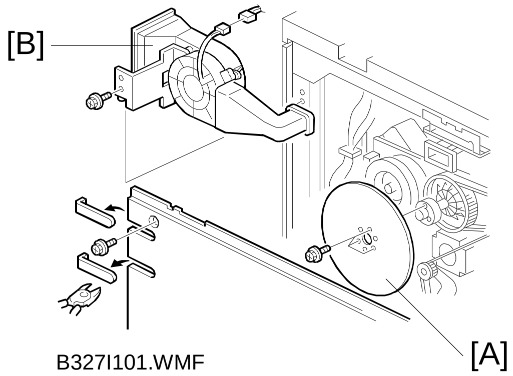
A294I210.WMF

12. Install 2 clamps [A] on the rear side of the LCT. Route the cable as shown.
13. Install 2 clamps [B] on the left side of the LCT. Route the cable as shown.
    NOTE: If the cable coming from the right cover opening is too long, make a loop [C] to adjust the length.
14. Install the stepped screw [D].
15. Install the right LCT cover, then install the key counter assembly [E] (1 screw) that was assembled in steps 1 to 3.
16. Connect the cable [F] from the LCT to the connector in the copier. Then join the LCT to the copier.
17. Instruct the user’s key operator to enable the key counter with the user tools (User Tools – System Settings – Count Manager – Key Counter).

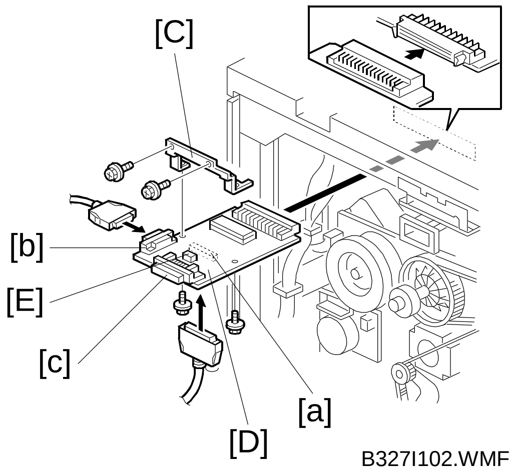
3.8 INTERFACE BOARD (CD-RW/TANDEM COPY KIT/PRINTER CONTROLLER)

3.8.1 INSTALLATION PROCEDURE

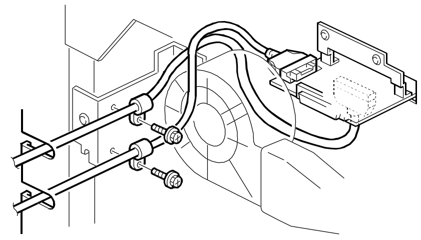
The interface control board is needed to use the optional CD-ROM writer (CD-RW), optional printer controller, or the tandem copy kit.



B327I101.WMF



B327I102.WMF



B327I103.WMF

1. Remove the upper rear cover of the copier.
2. Remove the fly wheel [A] (3 screws) and the drum cooling fan [B].
3. Install the support bracket [C] (2 screws) on the interface board [D].
   NOTE: When the CD-RW is installed, remove the short connector [E] installed on TB101.
4. Connect the interface board to the connector on the SICU. Then secure the support bracket to the copier (2 screws).
5. Connect the cable of the optional equipment to the terminal of the interface board.
   1) When the CD-RW is installed, connect the cable from the CD-RW to the connector [a] and route the cable as shown. Secure the cable with the upper clamp.
   2) When the cable for the tandem copy kit is installed, connect the cable to the connector [b] and route the cable as shown. Secure the cable with the lower clamp.

   NOTE: The connector [c] is for the printer controller.
6. Reinstall the drum cooling fan and the fly wheel removed in step 2.
7. Reinstall the upper rear cover of the copier.

4. SERVICE TABLES

4.1 GENERAL CAUTIONS

Do not turn off either of the power switches while any of the electrical components are active. Doing so might cause damage to units such as the transfer belt, drum, and development unit when they are pulled out of or put back into the copier.

4.1.1 DRUM

An organic photoconductor (OPC) drum is more sensitive to light and ammonia gas than a selenium drum. Follow the cautions below when handling an OPC drum.

1. Never expose the drum to direct sunlight.
2. Never expose the drum to direct light of more than 1,000 Lux for more than a minute.
3. Never touch the drum surface with bare hands. When the drum surface is touched with a finger or becomes dirty, wipe it with a dry cloth or clean it with wet cotton. Wipe with a dry cloth after cleaning with wet cotton.
4. Never use alcohol to clean the drum; alcohol dissolves the drum surface.
5. Store the drum in a cool, dry place away from heat.
6. Take care not to scratch the drum as the drum layer is thin and is easily damaged.
7. Never expose the drum to corrosive gases such as ammonia gas.
8. Always keep the drum in the protective sheet when keeping the drum unit, or the drum itself, out of the copier. Doing so avoids exposing it to bright light or direct sunlight, and will protect it from light fatigue.
9. Dispose of used drums in accordance with local regulations.
10. When installing a new drum, do the Auto Process Control Data Adjustment (SP 2-962).

4.1.2 DRUM UNIT

1. Before pulling out the drum unit, place a sheet of paper under the drum unit to catch any spilt toner.
2. Make sure that the drum unit is set in position and the drum stay is secured with a screw before the main switch is turned on. If the drum unit is loose, poor contact of the drum connectors may cause electrical noise, resulting in unexpected malfunctions (RAM data change is the worst case).
3. To prevent drum scratches, remove the development unit before removing the drum unit.

4.1.3 TRANSFER BELT UNIT

1. Never touch the transfer belt surface with bare hands.
2. Take care not to scratch the transfer belt, as the surface is easily damaged.
3. Before installing the new transfer belt, clean all the rollers and the inner part of the transfer belt with a dry cloth to prevent the belt from slipping.

4.1.4 SCANNER UNIT

1. When installing the exposure glass, make sure that the white paint is at the rear left corner.
2. Clean the exposure glass with alcohol or glass cleaner to reduce the amount of static electricity on the glass surface.
3. Use a cotton pad with water or a blower brush to clean the mirrors and lens.
4. Do not bend or crease the exposure lamp flat cable.
5. Do not disassemble the lens unit. Doing so will throw the lens and the copy image out of focus.
6. Do not turn any of the CCD positioning screws. Doing so will throw the CCD out of position.

4.1.5 LASER UNIT

1. Do not loosen the screws that secure the LD drive board to the laser diode casing. Doing so would throw the LD unit out of adjustment.
2. Do not adjust the variable resistors on the LD unit, as they are adjusted in the factory.
3. The polygon mirror and F-theta lenses are very sensitive to dust. Do not open the optical housing unit.
4. Do not touch the glass surface of the polygon mirror motor unit with bare hands.

4.1.6 CHARGE CORONA

1. Clean the corona wires with a dry cloth. Do not use sandpaper or solvent.
2. Clean the charge corona casing with water first to remove NOx based compounds. Then clean it with alcohol if any toner still remains on the casing.
3. Clean the end block with a blower brush first to remove toner and paper dust. Then clean with alcohol if any toner still remains.
4. Do not touch the corona wires with bare hands. Oil stains from fingers may cause uneven image density on copies.
5. Make sure that the wires are correctly between the cleaner pads and that there is no foreign material (iron filings, etc.) on the casing.
6. When installing new corona wires, do not bend or scratch the wire surface. Doing so may cause uneven charge. Also be sure that the corona wires are correctly positioned in the end blocks. (See Charge Corona Wire Replacement)
7. Clean the grid plate with a blower brush (not with a dry cloth).
8. Do not touch the charge grid plate with bare hands. Also, do not bend the charge grid plate or make any dent in it. Doing so may cause uneven charge.

4.1.7 DEVELOPMENT

1. Be careful not to nick or scratch the development roller.
2. Place the development unit on a sheet of paper after removing it from the copier.
3. Never disassemble the development roller assembly. The position of the doctor plate is set with special tools and instruments at the factory to ensure the proper gap between the doctor blade and the development roller.
4. Clean the drive gears after removing used developer.
5. Dispose of used developer in accordance with local regulations.
6. Never load types of developer and toner into the development unit other than specified for this model. Doing so will cause poor copy quality and toner scattering.
7. Immediately after installing new developer, the TD sensor initial setting procedure should be performed to avoid damage to the copier. Do not perform the TD sensor initial setting with used developer. Do not make any copies before doing the TD sensor initial setting.
8. When using a vacuum cleaner to clean the development unit casing, always ground the casing with your fingers to avoid damaging the toner density sensor with static electricity.
9. When replacing the TD sensor, the developer should be replaced and then the TD sensor initial setting procedure (SP2-801) should be done, followed by process control initialization (SP2-962).

4.1.8 CLEANING

1. When servicing the cleaning section, be careful not to damage the edge of the cleaning blade.
2. Do not touch the cleaning blade with bare hands.
3. Before disassembling the cleaning section, place a sheet of paper under it to catch any toner falling from it.

4.1.9 FUSING UNIT

1. After installing the fusing thermistor, make sure that it is in contact with the hot roller and that it is movable.
2. Be careful not to damage the edges of the hot roller strippers or their tension springs.
3. Do not touch the fusing lamp and rollers with bare hands.
4. Make sure that the fusing lamp is positioned correctly and that it does not touch the inner surface of the hot roller.

4.1.10 PAPER FEED

1. Do not touch the surface of the pick-up, feed, and separation rollers.
2. To avoid paper misfeeds, the side fences and end fence of the paper tray must be positioned correctly to align with the actual paper size.

4.1.11 USED TONER

1. We recommend checking the amount of used toner at every EM.
2. Dispose of used toner in accordance with local regulations. Never throw toner into an open flame, for toner dust may ignite.

4.2 SERVICE PROGRAM MODE

4.2.1 SERVICE PROGRAM MODE OPERATION

The service program (SP) mode is used to check electrical data, change modes, and adjust values.

Service Program Access Procedure

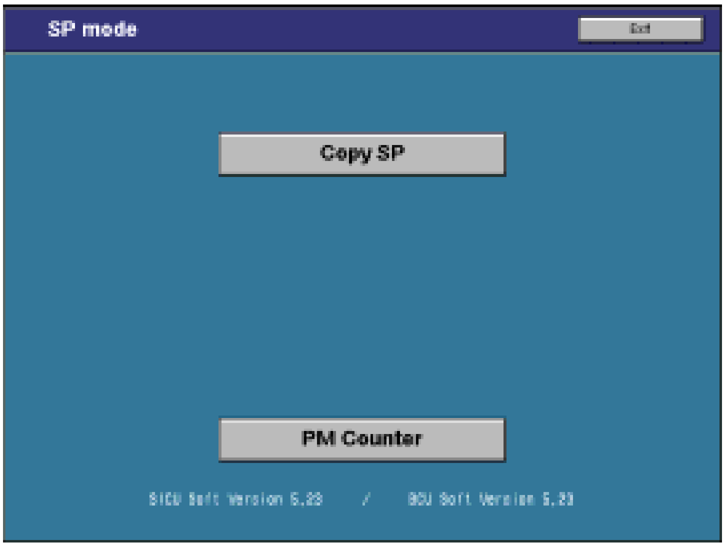
Entering SP mode

1) Press the following keys in sequence.

◈ → 1 → 0 → 7 → C

Hold the C key for more than 3 seconds.

2) A menu of SP modes is displayed on the LCD.


SP mode
Exit
Copy SP
PM Counter
SICU Soft Version 5.23 / BCU Soft Version 5.23

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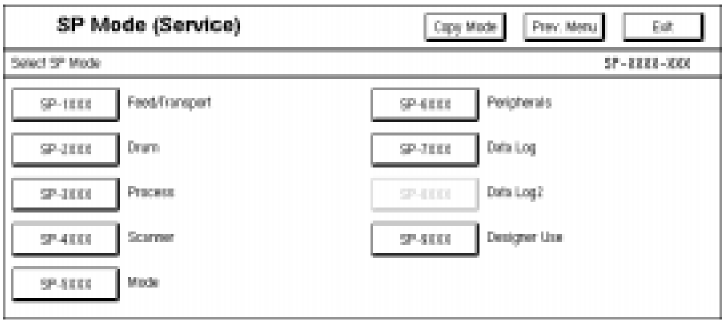
NOTE: The installed applications appear as Copy SP and Printer SP. If the printer application is not installed, its name does not appear.

3) Touch the application which you need. Then, the application’s SP mode display will appear, as shown.


SP Mode (Service)
Copy Mode
Prev. Menu
Exit
Select SP Mode
SP-XXXX-XXX
SP-1XXX
Feed/Transport
SP-2XXX
Drum
SP-3XXX
Process
SP-4XXX
Scanner
SP-5XXX
Mode
SP-6XXX
Peripherals
SP-7XXX
Data Log
SP-8XXX
Data Log2
SP-9XXX
Designer Use

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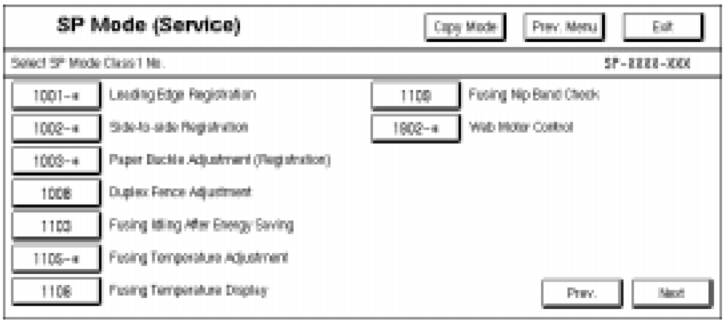
Exiting SP mode

1) Touch the “Exit” keys to return to the standby mode display.

Accessing Copy Mode from within an SP Mode

1) Touch the “Copy Mode” key.


SP Mode (Service)
Copy Mode
Prev. Menu
Exit
Prev.
Next

Select SP Mode Class 1 No. SP-XXXX-XXX

1001-*	Leading Edge Registration	1109	Fusing Nip Band Check
1002-*	Side-to-side Registration	1902-*	Web Motor Control
1003-*	Paper Buckle Adjustment (Registration)		
1008	Duplex Fence Adjustment		
1103	Fusing Idling After Energy Saving		
1105-*	Fusing Temperature Adjustment		
1106	Fusing Temperature Display		

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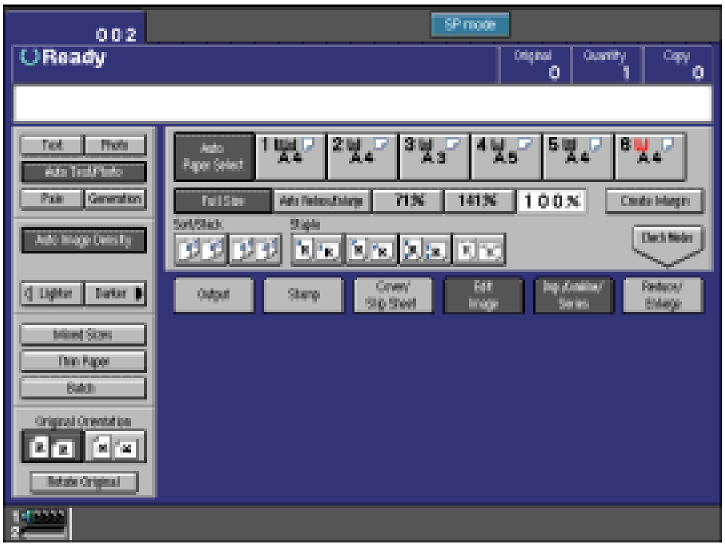
2) Select the appropriate copy mode and make trial copies.

3) To return to the SP mode, touch the “SP mode” key.


002
SP mode
Ready
Original
0
Quantity
1
Copy
0
Text
Photo
Auto Text/Photo
Pale
Generation
Auto Image Density
Lighter
Darker
Mixed Sizes
Thin Paper
Batch
Original Orientation
Rotate Original
Auto Paper Select
1 A4
2 A4
3 A3
4 A5
5 A4
6 A4
Full Size
Auto Reduce/Enlarge
71%
141%
100%
Create Margin
Sort/Stack
Staple
Check Modes
Output
Stamp
Cover/ Slip Sheet
Edit Image
Dup./Combine/ Series
Reduce/ Enlarge

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Selecting the Program Number

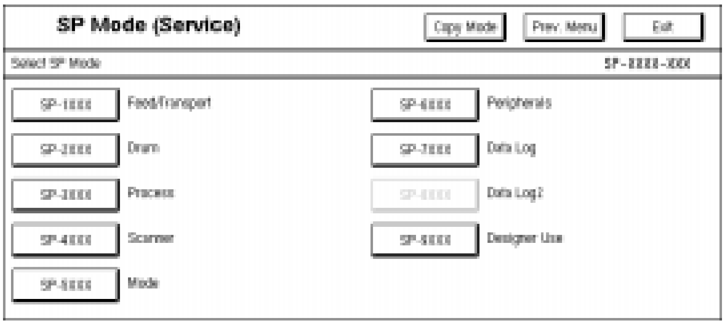
Program numbers are composed of two or three levels.
There are two ways to select the program number.

Ten-key Pad

Input the required program number.

Touch Panel

1) Touch the 1st level program.


SP Mode (Service)
Copy Mode
Prev. Menu
Exit
Select SP Mode
SP-XXXX-XXX
SP-1XXX
Feed/Transport
SP-2XXX
Drum
SP-3XXX
Process
SP-4XXX
Scanner
SP-5XXX
Mode
SP-6XXX
Peripherals
SP-7XXX
Data Log
SP-8XXX
Data Log2
SP-9XXX
Designer Use

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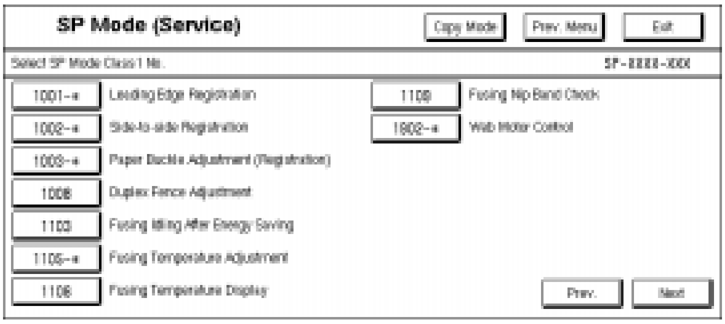
2) Touch the 2nd level program.


SP Mode (Service)
Copy Mode
Prev. Menu
Exit
Select SP Mode Class1 No.
SP-XXXX-XXX
1001-*
Leading Edge Registration
1002-*
Side-to-side Registration
1003-*
Paper Buckle Adjustment (Registration)
1008
Duplex Fence Adjustment
1103
Fusing Idling After Energy Saving
1105-*
Fusing Temperature Adjustment
1106
Fusing Temperature Display
1109
Fusing Nip Band Check
1902-*
Web Motor Control
Prev.
Next

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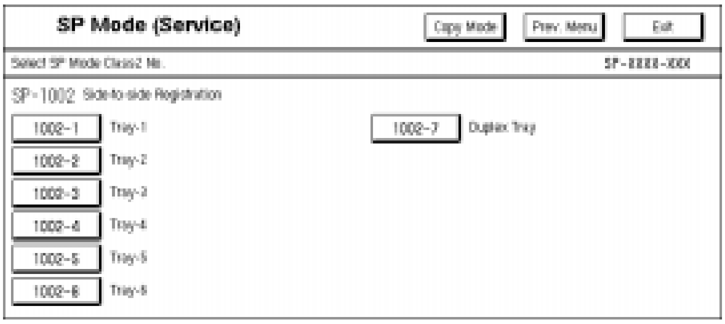
NOTE: A “*” mark indicates that there are 3rd level programs.

3) Touch the 3rd level program.


SP Mode (Service)
Copy Mode
Prev. Menu
Exit
Select SP Mode Class2 No.
SP-XXXX-XXX
SP-1002 Side-to-side Registration
1002-1
Tray-1
1002-2
Tray-2
1002-3
Tray-3
1002-4
Tray-4
1002-5
Tray-5
1002-6
Tray-6
1002-7
Duplex Tray

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Inputting a Value or Setting for an SP Mode

1. Select the required program mode as explained on the previous page.
2. Enter the required setting using the ten-key pad, then touch the “Start” key or OK key or # key.

   NOTE: 1) If you forget to touch the “Start” key or OK key, the previous value remains.
   2) Change between “+” and “–” using the “•” key before entering the required value.
3. Exit SP mode.

4.2.2 SERVICE PROGRAM MODE TABLES

NOTE: 1) In the Function column, comments are in italics.
2) In the Settings column, the default value is in bold letters.
3) S and B in the right hand side of the mode number column means that this mode is stored in the NVRAM on the SICU (S) or BCU (B). If you do a RAM reset, all these SP modes will be reset to their factory settings.

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
1-001	Leading Edge Registration				
	1	Paper Tray (Copier and LCT)	B	Adjusts the printing leading edge registration for feeding from the trays using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 3 ± 2 mm.* *See "Replacement and Adjustment – Copy Image Adjustments" for details.*	+9 ~ –9 0.1 mm/step **+3.0 mm**
	2	Duplex Tray	B	Adjusts the printing leading edge registration for the duplex feeding using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 3 ± 2 mm.* *See "Replacement and Adjustment – Copy Image Adjustments" for details.*	
1-002	Side-to-Side Registration				
	1	Tray-1	B	Adjusts the printing side-to-side registration from the 1st paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *See "Replacement and Adjustment – Copy Image Adjustments" for details on SP1-002.*	+9 ~ –9 0.1 mm/step **+0.0 mm**
	2	Tray-2	B	Adjusts the printing side-to-side registration from the 2nd paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **+0.0 mm**
	3	Tray-3	B	Adjusts the printing side-to-side registration from the 3rd paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **+0.0 mm**

Mode No. (Class 1, 2 and 3)				Function	Settings
1-002	Side-to-Side Registration				
	4	Tray-4 (LCT)	B	Adjusts the printing side-to-side registration from the 4th paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **+ 0.0 mm**
	5	Tray-5 (LCT)	B	Adjusts the printing side-to-side registration from the 5th paper station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **+0.0 mm**
	6	Tray-6 (LCT)	B	Adjusts the printing side-to-side registration from the 6th paper station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ±2.0 mm.*	+9 ~ –9 0.1 mm/step **+0.0 mm**
	7	Duplex Tray	B	Adjusts the printing side-to-side registration from the duplex tray using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ±2.0 mm.*	+9 ~ –9 0.1 mm/step **+0.0 mm**
1-003	Paper Buckle Adjustment (Registration)				
	1	Copier Paper Tray	B	Adjusts the relay clutch timing at registration. The relay clutch timing determines the amount of paper buckle at registration. (A +ve setting leads to more buckling.)	+9 ~ –9 1 mm/step **+0.0 mm**
	2	LCT Tray	B		
	3	Duplex Tray	B		
1-008	Duplex Fence Adjustment				
			B	Adjusts the distance between the front and rear fences.	+4 ~ –4 0.5 mm/step **±1.0 mm**
1-103	Fusing Idling After Energy Saving				
			B	Selects whether fusing idling is done or not when recovering from the Energy Saver mode.	**0: Not done** 1: Done
1-105	Fusing Temperature Adjustment				
	1	Fusing Temperature in Waiting Condition	B	Adjusts the fusing temperature for stand-by.	170 ~ 200 1°C/step **173°C**
	2	Fusing Temperature Lower Limit	B	Adjusts the fusing temperature lower limit. When the fusing unit falls below this temperature, the machine stops copying. Copying automatically restarts when the fusing temperature recovers. ***This SP mode is for designer's use only.***	157 ~ 167 1°C/step **163°C**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
1-105	Fusing Temperature Adjustment				
	3	Fusing Temperature Correction (<A4/LT)	B	Specifies the amount to raise the fusing temperature from standby mode to print on A4/LT or smaller width paper.	+0 ~ +20 1°C/step **+15°C**
	4	Fusing Temperature Correction (A4/LT)	B	Specifies the amount to raise the fusing temperature from standby mode to print on paper of A4/LT width.	+0 ~ +25 1°C/step **+10°C**
1-106	Fusing Temperature Display				
				Displays the fusing temperature.	
1-109	Fusing Nip Band Check				
				Feeds a sheet from a paper tray and stops the sheet when it is between the hot roller and the pressure roller. Use an OHP sheet. After keeping the sheet there for 30 seconds, the sheet is automatically fed out. For details, see Replacement and Adjustment – Fusing.	
1-902	Web Motor Control				
	1	Web Consumption	B	Displays the percentage of the web consumption in 1% steps (0% ~ 100%). The value can be manually input using number keys.	
	2	Web Motor Drive Interval	B	Change the interval of copy operation time after which the web motor is driven	15 ~ 130 1 s/step **40 s**
	3	Web Motor Drive Time	B	Changes the time that the web motor is driven.	0.1 ~ 3.0 0.1 s/step **0.8 s**
	4	Web Near End Setting	B	Changes the web consumption ratio at which web near end is displayed. About 40k A4 copies can be made after the web consumption reaches 100%.	0 ~ 100 1%/step **100%**
1-906	Duplex Stop Position – Right				
			B	Changes the paper stop position in the duplex unit after passing duplex transport sensor 2. ***For designer use only.***	–10 ~ 10 2 mm/step **–8 mm**
2-001	Charge Corona Bias Adjustment				
	1	Image Area (Auto Process Control OFF)	B	Adjusts the voltage applied to the grid plate during copying when auto process control is **off**. *Normally, there is no need to adjust this. If there is an ID or TD sensor problem, the machine goes into fixed toner supply mode. After replacing the drum or charge corona wire, change this value to the default.*	–650 ~ –1,300 10 V/step **–1,000 V**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
2-001	Charge Corona Bias Adjustment				
	2	ID Sensor Pattern (Auto Process Control OFF)	B	Adjusts the voltage applied to the grid plate when making the ID sensor pattern, when auto process control is switched off. *Normally, there is no need to adjust this. If the user wants high density copies, the sensor pattern must be lighter, so this voltage must be a higher negative voltage.*	–650 ~ –1,300 10 V/step **–800 V**
	3	Image Area (Auto Process Control ON)	B	Adjusts the voltage applied to the grid plate during copying when auto process control is switched **on**. This voltage changes every time auto process control starts up (every time the machine is switched on)	–650 ~ –1,300 10 V/step **–1,000 V**
	4	Grid Voltage for Transparent Sheet	B	Adjusts the voltage applied to the grid plate when translucent mode is selected. Use this if there is a copy quality problem when making copies on translucent paper. Normally there is no need to adjust this. See 2-001-1.	–650 ~ –1,300 10 V/step **–1,000 V**
	5	Total Corona Current	B	Adjusts the current applied to the charge corona wire except for Photo mode.	–1,400 ~ –2,800 100µA/step **–1,400 µA**
	6	Total Corona Current (Photo mode)	B	Adjusts the current applied to the charge corona wire for Photo mode.	1,400 ~ –2,800 100µA/step **–1,600 µA**
2-101	Printing Erase Margin				
	1	Leading Edge	S	Adjusts the leading edge erase margin. *See "Replacement and Adjustment – Copy Image Adjustments" for more on SP2-101.*	0.0 ~ 9.0 0.1 mm/step **2.5 mm**
	2	Trailing Edge	S	Adjusts the trailing edge erase margin.	0.0 ~ 9.0 0.1 mm/step **2.5 mm**
	3	Left	S	Adjusts the left side erase margin.	0.0 ~ 9.0 0.1 mm/step **2.0 mm**
	4	Right	S	Adjusts the right side erase margin.	0.0 ~ 9.0 0.1 mm/step **2.0 mm**
2-103	LD Power Adjustment				
	1	LD1 - 600dpi	B	Adjusts the power of LD1. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 µW **+0**
	2	LD2 - 600dpi	B	Adjusts the power of LD2. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 µW **+0**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
2-103	LD Power Adjustment				
	3	LD3 - 600dpi	B	Adjusts the power of LD3. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**
	4	LD4 - 600dpi	B	Adjusts the power of LD4. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**
	5	LD1 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
	6	LD2 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
	7	LD3 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
	8	LD4 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
2-104	LD Power Adjustment (for ID pattern)				
			B	Selects the LD power for making the ID pattern when auto process control is switched on. Do not use unless advised.	0 ~ 7 1/step **4**
2-114	Printer Dot Edge Parameter Setting				
	1	Leading Dot Level Setting (Left Edge)	S	Changes the LD power level for the left edge pixel in printer mode, if FCI is off.	20 ~ 100% 1% step **50%**
	2	Trailing Dot Level Setting (Right Edge)	S	Changes the LD power level for the left edge pixel in printer mode, if FCI is off.	20 ~ 100% 1% step **50%**
	3	Multiple Dot Level Setting	S	Changes the LD power level for continuous pixels in printer mode, if FCI is off.	20 ~ 100% 1% step **100%**
	4	Independent Dot Level Setting	S	Changes the LD power level for independent dots in printer mode, if FCI is off.	20 ~ 100% 1% step **50%**
2-201	Development Bias Adjustment				
	1	Image Area	B	Adjusts the development bias for copying. *This can be adjusted as a temporary measure if faint copies appear due to an aging drum.*	–200 ~ –700 10 V/step **–550 V**
	2	ID Sensor Pattern	B	Adjusts the development bias for making the ID sensor pattern for VSP measurement. *This should not be used in the field, because it affects ID sensor pattern density, which affects toner supply.*	–200 ~ –700 10 V/step **–400 V**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-201	Development Bias Adjustment				
	3	Transparent Sheet	B	Adjusts the development bias for copying onto translucent sheets.	–200 ~ –700 10 V/step **–550 V**
	4	ID Sensor Development Potential	B	Adjusts the development potential for making the ID sensor pattern for V_{SP} measurement. Do not adjust.	–140 ~ –380 1 V/step **–280 V**
2-207	Forced Toner Supply				
	1	Forced Toner Supply		Forces toner supply for 7 seconds from the toner bank through the toner hopper to the development unit. *This mode finishes automatically after the toner is supplied 7 times (1 s for each time).*	Start
	2	Toner Bank Toner Setup		Turns on the main motor, development motor, development bias, toner supply motor and charge corona. Then turns on the toner supply coil clutch to supply toner to the toner hopper, but not to the development unit. It takes about 7 minutes. *This mode should be used to fill the toner transport path with toner after cleaning the toner supply unit, or at installation.*	Start
2-208	Toner Supply Mode				
			B	Selects the toner supply mode. *Use image pixel count mode only as a temporary countermeasure if the ID or TD sensor is defective.*	**Sensor Control** Pixel Count Control
2-209	Toner Supply Rate				
			B	Adjusts the toner supply rate from the hopper. *Increasing this value reduces the toner supply roller clutch on time. Use a lower value if the user tends to make lots of copies that have a high proportion of black.*	100 ~ 2,000 10 mg/s/step **800 mg/s**
2-210	ID Sensor Pattern Interval				
			B	Changes the interval for making the ID sensor pattern (V_{SP}/V_{SG} detection). *If the user normally makes copies with a high proportion of black, reduce the interval.*	0 ~ 500 1 copy/step **10 copies**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
2-220	VREF Manual Setting				
			B	Adjusts the TD sensor reference voltage (VREF). *Change this value after replacing the development unit with another one that already contains toner.* *For example, when using a development unit from another machine for test purposes, do the following:* *1. Check the value of SP2-220 in both the machine containing the test unit and the machine that you are going to move it to.* *2. Install the test development unit, then input the VREF for this unit into SP2-220.* *3. After the test, put back the old development unit, and change SP2-220 back to the original value.*	0 ~ 5.0 0.01 V/step **2.5 V**
2-223	VT Display				
			B	Displays the current TD sensor output voltage.	
2-226	Toner Bank Toner Discharge				
				This SP removes toner from the toner bank to the toner hopper. After turning the toner supply motor and the toner bank motor on, the toner supply coil clutch turns on and off at 2 second intervals. The motors and clutch stop when the toner near-end sensor (in the toner bank unit) detects no toner. Even if the sensor continues to detect toner, this operation stops when the clutch has been turned on and off 10 times, so this SP may have to be repeated to clean out the system completely.	Start
2-227	Toner Supply Mode Display				
				Displays the toner supply mode used for the last copy. 1: ID Sensor and TD Sensor (from the 11th copy, using VT – VREF) 2: ID Sensor and TD Sensor (using VSP/VSG) – before the 10th copy of a job 3: TD Sensor – temporary mode when ID sensor output is abnormal 4: Image Pixel Count	
2-301	Transfer Current Adjustment				
	1	1st Copy Side	B	Adjusts the current applied to the transfer belt during copying on the 1st side of the paper. If the user uses thicker paper, the current may have to be increased to ensure sufficient transfer of toner.	15 ~ 200 1 µA/step **120 µA**
	2	Thick Paper	B	Adjusts the current applied to the transfer belt during copying on thick paper. *See above.*	15 ~ 200 1 µA/step **120 µA**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-301	Transfer Current Adjustment				
	3	OHP Sheet	B	Adjusts the current applied to the transfer belt during copying on OHP sheet. See above. If the user normally feeds thicker paper from the bypass tray, use a higher setting.	15 ~ 200 1 µA/step **140 µA**
	4	Transparent Paper	B	Adjusts the current applied to the transfer belt during copying on translucent paper.	15 ~ 200 1 µA/step **120 µA**
	5	2nd Copy	B	Adjusts the current applied to the transfer belt during copying on the 2nd side of the paper.	15 ~ 200 1 µA/step **120 µA**
	6	Between Pages	B	Adjusts the current applied to the transfer belt between the pages.	15 ~ 200 1 µA/step **20 µA**
2-506	Cleaning Interval – Multiple Copy				
	1	On/Off	B	Selects whether multiple copy jobs are stopped at regular intervals for the following purposes. 1. Stop and turn the drum motor in reverse to clean the cleaning blade edge 2. Make an ID sensor pattern to correct the toner density control. The interval depends on SP2-506-2. Use if the drum gets dirty or images get too pale or too dark during a long job. Normally keep at ‘No’, because the ‘Yes’ setting causes the machine to stop copying every 15 minutes, which may cause problems for the customer.	**1: No** 2: Yes
	2	Interval	B	Selects the interval at which multi copy jobs are stopped.	1 ~ 100 1 minute/step **15 minutes**
2-801	TD Sensor Initial Setting				
			B	Performs the TD sensor initial setting. This SP mode controls the voltage applied to the TD sensor to make the TD sensor output about 2.5 V. After finishing this, the TD sensor output voltage is displayed. *Use this mode only after changing the TD sensor or the developer.*	Start
2-803	Corona Wire Cleaner On				
				Turns on the corona wire cleaner manually. *When copy density across the paper is uneven at EM, clean the wire with this mode.*	Start

Mode No. (Class 1, 2 and 3)				Function	Settings
2-804	Charge Corona Cleaner Setting				
	1	Corona Wire Cleaner Operation Setting	B	Selects when automatic corona wire cleaning is done. 0: Corona wire cleaning is not done. 1: When process control initial setting is done, if the copy number after the last cleaning operation is over the number set in SP2-804-2. 2: At the period set in SP2-804-2.	0: Not done **1: Done** 2:Periodically
	2	Operation Interval	B	Selects the interval for automatic corona wire cleaning.	100 ~ 10,000 100 print/step **5,000**
2-813	Printer Gamma Setting				
			S	Select if printer gamma correction is applied or not. *This SP mode is for designer use only.*	**0: Applied** 1: Not applied
2-902	Printing Test Pattern				
	2	IPU Test Pattern Selection (for Scanner)		Prints the test patterns for the IPU chip. See section 4.2.3. for how to print test patterns. *This SP mode is useful for finding whether the SICU or the SBU is defective. If the printout is not OK, the SICU is defective.*	
	3	Printing Test Pattern		Prints the printer test patterns. See section 4.2.3. for how to print test patterns. Example: 15. Trimming Area *This SP mode is useful for finding whether the LDDR or the SICU is defective. If the printout is not OK, the LDDR is defective.*	
	4	Outer I/F Block Test Pattern		Prints the test patterns for the IPU chip. See section 4.2.3. for how to print test patterns. *This SP mode is useful for finding whether the SICU or the printer application is defective. If the printout is not OK, the SICU is defective.*	
	5	Frequency Pattern Density		Designer use only.	
2-906	Vcont Manual Setting				
			B	***Factory use only.***	**9.7 V**
2-909	Main Scan Magnification				
	1	Copier	S	Adjusts the magnification in the main scan direction for copy mode. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–2.0 ~ +2.0 0.1%/step **+0.0%**
	2	Printer	S	Adjusts the magnification in the main scan direction when printing from a personal computer. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–2.0 ~ +2.0 0.1%/step **+0.0%**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-910	Writing Sub Scan Magnification				
			S	Adjusts the magnification in the sub scan direction. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–1.0 ~ +1.0 0.1%/step **+0.0%**
2-911	Transfer Current On/Off Timing				
	1	La (ON)	B	Adjusts the transfer current on timing at the leading edge.	–30 ~ +30 1 mm/step **0 mm**
	3	Lc (OFF)	B	Adjusts the transfer current off timing (for example: –5 mm is 5 mm after the trailing edge).	–30 ~ +30 1 mm/step **–10 mm**
2-912	Drum Reverse Rotation Interval				
			B	**This SP mode is for designer use only. Do not change the value.**	0 ~ 10 1/step **2**
2-913	Test Pattern ID Adjustment				
				Adjusts the image density for printing test patterns (with SP2-902). Usually this SP mode is only used by designers. *The value is cleared when the main power switch is turned off and on.*	0 ~ 15 1/step **15**
2-920	LD Off Check				
				Checks whether the LD turns off or on when the front door is opened. 0: On 1: Off ***Factory use only.***	**0: ON** 1: OFF
2-930	Transfer Pre-cleaning				
				Designer use only	
2-961	Developer Initialization (Factory)				
				Factory use only.	
2-962	Auto Process Control				
			B	Automatically adjusts the following process control factors. 1. Drum potential sensor 2. ID sensor 3. Charge grid voltage (by changing V_D) 4. LD power (by changing V_H) Before using this SP, auto process control should be on (SP3-901). *After changing the drum, ID sensor, drum potential sensor, LD unit, charge corona wires, or toner density sensor, this SP should be used.*	Start
2-966	Periodical Auto Process Control				
			B	Selects whether auto process control is done after the first job since 24 hours is finished. This setting is required for a customer who keeps the main switch on all day.	**ON** OFF

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
2-967	Auto Image Density Adjustment				
			B	Selects whether auto image density adjustment is done during machine warm up. This mode is to counter dirty background that occurs when a machine is used in an area that contains ammonia. *If Periodical Auto Process Control (SP2-966) is used, this adjustment is done also after the auto process control is finished.*	**OFF** ON
2-968	Toner Density Correction				
			B	To prevent the image density dropping during continuous copying after a long interval (this is caused by a sudden increase of Q/M), VREF is changed by –0.06 V every 100 prints. This correction is applied from when the auto process control is done, until the number of prints set with this SP mode have been made.	0 ~ 20 k 1 k/step **0**
3-001	ID Sensor Initial Setting				
	1	ID Sensor PWM Setting	B	This SP mode is added to recover the machine when an SC condition occurs because ID Sensor Initial Setting is not done after doing an NVRAM Clear or replacing the NVRAM. Reset this SP to the factory setting in this case. *The PWM data is stored when ID Sensor Initial Setting is done.*	0 ~ 255 1/step **72**
3-001	ID Sensor Initial Setting				
	2	Initialization	B	Performs the ID sensor initial setting. The ID sensor output for the bare drum (VSG) is adjusted to 4.0 ± 0.2 V. *This SP mode should be performed after:* *1. Replacing or cleaning the ID sensor* *2. Replacing the NVRAM or doing an NVRAM clear.*	Start
3-103	ID Sensor Output Display				
	1	VSG	B	Displays the current VSG and VSP output. *If the ID sensor does not detect the ID pattern, "VSP = 5.0 V/VSG = 5.0 V" is displayed and an SC code is generated.* *If the ID sensor does not detect the bare area of the drum, "VSP = 0.0 V/VSG = 0.0 V" is displayed and an SC code is generated.*	
	2	VSG Initial (Designer Use)			
	3	VSP			
	4	VSP Initial (Designer Use)			
3-901	Auto Process Control Setting				
			B	Decides whether or not the machine checks and corrects the drum potential (VD) and LD power when the fusing temperature is lower than 100°C at power-up.	**ON** OFF
3-902	Process Control Data Display				
	1	Auto Process Control (O: OFF, 1: ON)	B	Displays whether auto process control is on or off.	

Mode No. (Class 1, 2 and 3)				Function	Settings
3-902	Process Control Data Display				
	2	VD	B	Displays the drum potential.	
	3	Half Tone VH	B	Displays the drum potential in areas illuminated by the laser during LD power adjustment (auto process control).	
	4	VG	B	Displays the charge grid voltage which resulted from the latest VD adjustment.	
	5	LD Power (Correction)	B	Displays the LD power correction value which resulted from the latest VH adjustment.	
	6	VID	B	Displays the latest drum surface voltage measured on the ID sensor pattern.	
	7	VM200	B	Displays the drum potential sensor output when 200 V is applied during potential sensor correction.	
	8	VM700	B	Displays the drum potential sensor output when 700 V is applied during potential sensor correction.	
4-008	Scanner Sub Scan Magnification				
			S	Adjusts the magnification in the sub scan direction for scanning. If this value is changed, the scanner motor speed is changed. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–0.9 ~ +0.9 0.1 %/step **+0.0 %**
4-010	Scanner Side-to-Side Registration				
			S	Adjusts the leading edge registration for scanning. *(–): The image moves in the direction of the leading edge* *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–9.0 ~ +9.0 0.1 mm/step **+0.0 mm**
4-011	Scanner Side-to-Side Registration				
			S	Adjusts the side-to-side registration for scanning. *(–): The image disappears at the left side.* *(+): The image appears at the left side.* *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–6.0 ~ +6.0 0.1 mm/step **+0.0 mm**
4-012	Scanner Erase Margin				
	1	Leading Edge	S	Adjusts the leading edge erase margin for scanning. *Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
	2	Trailing Edge	S	Adjusts the trailing edge erase margin for scanning. *See the comment for SP4-012-1.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
4-012	Scanner Erase Margin				
	3	Right	S	Adjusts the right side erase margin for scanning. *See the comment for SP4-012-1.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
	4	Left	S	Adjusts the left side erase margin for scanning. *See the comment for SP4-012-1.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
4-013	Scanner Free Run				
				Performs a scanner free run with the exposure lamp on.	**0: Stop** 1: Start
4-015	Scanner Speed Adjustment				
			S	Displays the value of the scanner speed fine adjustment. This setting can be changed using the number keys. *The scanner speed fine adjustment is automatically done when the main switch is turned on, and the current setting is overwritten.*	–20 ~ +20 1/step **0**
4-301	APS Sensor Output Display				
				Displays the APS sensor output signals when an original is placed on the exposure glass	
4-303	APS A5/HLT Size Original Detection				
			S	Selects whether or not the copier determines that the original is A5/HLT size when the APS sensor does not detect the size. *If "A5 length/5½" x 8½"" is selected, paper sizes that cannot be detected by the APS sensors are regarded as A5 lengthwise or 5½" x 8½".* *If "Not detected" is selected, "Cannot detect original size" will be displayed.*	**0: Not detected** 1: A5 length/ 5½" x 8½" 2: Not detected 3: A5 length/ 5½" x 8½" (Setting 2 or 3 is required if 267 x 390 and 267 x 195 paper is used.)
4-428	Scanner Adjustment				
	1	Flag Display	S	Displays whether or not the standard white level adjustment has been done.	Adjusted **Not adjusted**
	2	Standard		Corrects the standard white level from the white plate. ***This SP mode is for factory use only. Do not use this SP mode.***	Start
4-902	SBU Setting				
	1	Image data Path Setting	S	Changes the image data path in the SBU. ***This SP mode is for factory use only. Do not use this SP mode.***	0 ~5 1/step **0**
	2	ASIC ID Display		Displays the ASIC ID of the SBU. ***This SP mode is for factory use only.***	

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	3	E/O Adjustment - First Side	S	Checks the difference value of the black level for the first side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **128**
	4	E/O Adjustment - Last Side	S	Checks the difference value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **128**
	7	Black Level - First Side	S	Checks the value of the black level for the first side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **170**
	8	Black Level - Last Side	S	Checks the value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **170**
	15	Range Adjustment - First Side	S	Checks the AGC gain range of the white level for the first side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **80**
	16	Gain Range Adjustment - Last Side	S	Checks the AGC gain value of the white level for the last side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **80**
	19	Gain Adjustment - First Side E-ch	S	Checks the AGC gain value of the white level for the EVEN channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**
	20	Gain Adjustment - First Side O-ch	S	Checks the AGC gain value of the white level for the ODD channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**
	21	Gain Adjustment - Last Side E-ch	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**
	22	Gain Adjustment - Last Side O-ch	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	25	Reference Voltage Adjustment	S	Checks the value of the standard white level after adjusting the white level. ***This SP mode is for factory use only. Do not use this SP mode.***	0 ~ 255 1/step **117**
	31	E/O Adjustment - First Side (Memory)	S	Checks the difference value of the black level for the First side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~255 1/step **128**
	32	E/O Adjustment - Last Side (Memory)	S	Checks the difference value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~255 1/step **128**
	35	Black Level - First Side (Memory)	S	Checks the value of the black level for the first side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **170**
	36	Black Level - Last Side (Memory)	S	Checks the value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **170**
	43	Range Adjustment - First Side (Memory)	S	Checks the AGC gain value of the white level for the EVEN channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	44	Range Adjustment - Last Side (Memory)	S	Checks the AGC gain value of the white level for the ODD channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	47	Gain Adjustment - F/E ch (Memory)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	48	Gain Adjustment - F/O ch (Memory)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	49	Gain Adjustment - L/E ch (Memory)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	50	Gain Adjustment - L/O ch (Memory)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	53	Reference Voltage Adjustment (Memory)	S	Checks the value of the standard white level after adjusting the white level. ***This SP mode is for factory use only.***	0 ~ 255 1/step **117**
	59	Standard White Level		Checks either the maximum or minimum white shading data. ***This SP mode is for designer use only.***	0: Maximum 1: Minimum

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	61	Range F (Factory Setting)	S	Checks the AGC gain value of the white level for the EVEN channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **80**
	62	Gain Adjustment - First Side O ch (Factory Setting)	S	Checks the AGC gain value of the white level for the ODD channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **80**
	65	Range L (Factory Setting)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	66	Gain F-O ch (Factory Setting)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	67	Gain L/F ch (Factory Setting)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	68	Gain L-O ch (Factory Setting)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	71	Reference Voltage (Factory Setting)	S	Checks the value of the standard white level after adjusting the white level. ***This SP mode is for factory use only.***	0 ~ 255 1/step **117**
	75	Overflow Flag		Checks the overflow flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 1023 1/step **0**
	76	Time Out Flag		Checks the time out flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 1023 1/step **0**
	78	SBU Reset Error Flag		Checks the error flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 15 1/step **0**
	79	Error Flag		Checks the error flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	80	E/O Adjustment Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	81	Black Adjustment Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	82	Gain F/L Difference Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	83	Black Reading Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	84	White Reading Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	85	Retry Error Fault Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	86	Retry Error Success Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	87	White Reading Value - F/E ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	88	White Reading Value - F/O ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	89	White Reading Value - L/E ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	90	White Reading Value - L/O ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	91	BIPU IO	S	***This SP mode is for designer use only.***	
4-903	Filter Setting				
	5	Full Size Mode		Selects whether the copy is always in full size mode even if the magnification ratio has been changed. *Set to 1 when checking the magnification in the main scan direction. If the magnification is not 100%, something is wrong with the image processing circuits.*	**0: Normal operation** 1: Always full size mode
	7	Image Shift in Magnification		Adjusts the pixel shift amount in the main scan direction in magnification mode. ***This SP mode is for designer use only.***	0 ~ 8191 1/step **0**
	9	Filter Type Selection - Photo Mode	S	Selects the filter type for Photo mode. *Coefficients used:* *0: SP4-903-36 1: SP4-903-37* *If “0” is selected, the image will be sharper. However, dot screen areas will be faint.* *This SP is ignored unless the user selects ‘Service Mode’ in UP mode.*	0: MTF **1: Smoothing**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
4-903	Filter Setting				
	10	Pre-filter Type (Text mode 25% ~ 49%)	S	Selects the pre-filter type. 0: None 1: Smoothing (Normal) 2: Smoothing (Weak) 3 ~ 5: Special smoothing filters which reduce moiré but do not weaken the edges of low contrast text. A suitable filter should be selected depending on the original type. 6: MTF (Weak) 7: MTF (Normal) 8 ~ 10: Special smoothing filters only for the main scan direction. These filters should be used if the edges of lines that are parallel to the sub scan line are weakened when a filter from 3 ~ 5 is selected. A suitable filter should be selected depending on the original type. This SP is ignored unless the user selects 'Service Mode' in UP mode.	0 ~ 10 1/step **1**
	11	Pre-filter Type (Text mode 50% ~ 154%)	S		0 ~ 10 1/step **0**
	12	Pre-filter Type (Photo mode)	S		0 ~ 10 1/step **1**
	13	Pre-filter Type (Text/Photo mode 25% ~ 49%)	S		0 ~ 10 1/step **1**
	14	Pre-filter Type (Text/Photo mode 50% ~ 154%)	S		0 ~ 10 1/step **0**
	15	Pre-filter Type (Pale mode)	S		0 ~ 10 1/step **1**
	16	Pre-filter Type (Generation mode)	S		0 ~ 10 1/step **1**
	20	Filter Level - Text (25% ~ 49%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 25% ~ 49% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	21	Filter Level - Text (25% ~ 49%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 25% ~ 49% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	22	Filter Strength - Text (25% ~ 49%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 25% ~ 49% reduction for text mode. 0: Weak 6:Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	23	Filter Strength - Text (25% ~ 49%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 25% ~ 49% magnification for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **0**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
4-903	Filter Setting				
	24	Filter Level - Text (50% ~ 154%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 50% ~ 154% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	25	Filter Level - Text (50% ~ 154%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 50% ~ 154% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	26	Filter Strength - Text (50% ~ 154%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 50% ~ 154% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **2**
	27	Filter Strength - Text (50% ~ 154%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 50% ~ 154% magnification for text mode. 0: Weak 6: Strong. *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	28	Filter Level - Text (155% ~ 256%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 155% ~ 256% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	29	Filter Level - Text (155% ~ 256%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 155% ~ 256% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	30	Filter Strength - Text (155% ~ 256%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 155% ~ 256% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **5**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	31	Filter Strength - Text (155% ~ 256%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 155% ~ 256% magnification for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	32	Filter Level - Text (257% ~ 400%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 256% ~ 400% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	33	Filter Level - Text (257% ~ 400%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 257% ~ 400% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	34	Filter Strength - Text (257% ~ 400%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 257% ~ 400% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **5**
	35	Filter Strength - Text (257% ~ 400%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 257% ~ 400% magnification for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	36	MTF Filter in Photo Mode	S	Selects the MTF filter coefficient for photo mode, if MTF is enabled for this mode with SP4-903-9. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	37	Smoothing Filter in Photo mode	S	Selects the smoothing filter coefficient for photo mode, if smoothing is enabled for this mode with SP4-903-9. 0: Weak 4: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 4 1/step **1**
	38	Filter Strength in Photo mode	S	Selects the smoothing filter coefficient for photo mode, if MTF is enabled for this mode with SP4-903-9. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
4-903	Filter Setting				
	39	Filter Level - Text/Photo (25% ~ 49%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 25% ~ 49% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	40	Filter Level - Text/Photo (25% ~ 49%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 25% ~ 49% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	41	Filter Strength - Text/Photo (25% ~ 49%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 25% ~ 49% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **0**
	42	Filter Strength - Text/Photo (25% ~ 49%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 25% ~ 49% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **0**
	43	Filter Level - Text/Photo (50% ~ 154%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 50% ~ 154% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	44	Filter Level - Text/Photo (50% ~ 154%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 50% ~ 154% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	45	Filter Strength - Text/Photo (50% ~ 154%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 50% ~ 154% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
4-903	Filter Setting				
	46	Filter Strength - Text/Photo (50% ~ 154%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 50% ~ 154% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	47	Filter Level - Text/Photo (155% ~ 256%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 155% ~ 256% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	48	Filter Level - Text/Photo (155% ~ 256%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 155% ~ 256% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	49	Filter Strength - Text/Photo (155% ~ 256%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 155% ~ 256% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	50	Filter Strength - Text/Photo (155% ~ 256%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 155% ~ 256% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	51	Filter Level - Text/Photo (257% ~ 400%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 257% ~ 400% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	52	Filter Level - Text/Photo (257% ~ 400%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 257% ~ 400% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
4-903	Filter Setting				
	53	Filter Strength - Text/Photo (257% ~ 400%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 257% ~ 400% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	54	Filter Strength - Text/Photo (257% ~ 400%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 257% ~ 400% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	55	Filter Level in Pale Mode	S	Selects the table of the MTF filter coefficient for pale original mode Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	56	Filter Strength in Pale Mode	S	Selects the table of the MTF filter strength for pale original mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	57	Filter Level in Generation Mode	S	Selects the table of the MTF filter coefficient for pale original mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	58	Filter Strength in Generation Mode	S	Selects the table of the MTF filter strength for generation original mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	60	Independent Dot Erase - Text Mode	S	Selects the independent dot erase level for text mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Section Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**
	62	Independent Dot Erase - Text/Photo Mode	S	Selects the independent dot erase level for text/photo mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Sectional Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	63	Independent Dot Erase - Pale Mode	S	Selects the independent dot erase level for pale mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Section Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**
	64	Independent Dot Erase - Generation Copy Mode	S	Selects the independent dot erase level for generation copy mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Sectional Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**
	65	Scanner Gamma Thresh Level - Text	S	Adjust the threshold level for the background erase function in letter mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-70.*	0 ~ 255 1/step **0**
	66	Scanner Gamma Thresh Level - Photo	S	Adjust the threshold level for the background erase function in photo mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-71.*	0 ~ 255 1/step **0**
	67	Scanner Gamma Thresh Level - Text/Photo	S	Adjust the threshold level for the background erase function in text/photo mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-72.*	0 ~ 255 1/step **0**
	68	Scanner Gamma Thresh Level - Pale	S	Adjust the threshold level for the background erase function in pale mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-73.*	0 ~ 255 1/step **0**
	69	Scanner Gamma Thresh Level - Generation	S	Adjust the threshold level for background erase in generation copy mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-74.*	0 ~ 255 1/step **0**
	70	Background Erase Mode Text	S	Selects the background erase function setting in text mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-65.) 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-65.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	71	Background Erase Mode Photo	S	Selects the background erase function setting in photo mode. 0: Not done 1: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-66.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 1 1/step **0**
	72	Background Erase Mode Text/Photo	S	Selects the background erase function setting in text/photo mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-67.) 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-67.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**
	73	Background Erase Mode Pale	S	Selects the background erase function setting in pale mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-68.) 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-68.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**
	74	Background Erase Mode Generation	S	Selects the background erase function setting in generation mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-69. 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-69. *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**

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(Class 1, 2 and 3)</th><th>Function</th><th>Settings</th></tr>
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<tr><td>75</td><td>Line Thickness Correction - Setting in Generation Mode</td><td>S</td><td>Selects the line thickness setting in generation mode.
<table>
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<tr><td>1:</td><td>No Correction</td><td>Thinner 1</td></tr>
<tr><td>2:</td><td>No Correction</td><td>Thinner 2</td></tr>
<tr><td>3:</td><td>No Correction</td><td>Thicker</td></tr>
<tr><td>4:</td><td>Thinner 1</td><td>No Correction</td></tr>
<tr><td>5:</td><td>Thinner 1</td><td>Thinner 1</td></tr>
<tr><td>6:</td><td>Thinner 1</td><td>Thinner 2</td></tr>
<tr><td>7:</td><td>Thinner 1</td><td>Thicker</td></tr>
<tr><td>8:</td><td>Thinner 2</td><td>No Correction</td></tr>
<tr><td>9:</td><td>Thinner 2</td><td>Thinner 1</td></tr>
<tr><td>10:</td><td>Thinner 2</td><td>Thinner 2</td></tr>
<tr><td>11:</td><td>Thinner 2</td><td>Thicker</td></tr>
<tr><td>12:</td><td>Thicker</td><td>No Correction</td></tr>
<tr><td>13:</td><td>Thicker</td><td>Thinner 1</td></tr>
<tr><td>14:</td><td>Thicker</td><td>Thinner 2</td></tr>
<tr><td>15:</td><td>Thicker</td><td>Thicker</td></tr>
</table>
Line Thickness:
Thicker > No Correction > Thinner 1 > Thinner 2
<i>Refer ‘Line Width Correction’ in section 2.</i></td><td>0 ~ 15
1/step
5</td></tr>
<tr><td>76</td><td>Line Thickness Correction Threshold - in Generation Main Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-75 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
<tr><td>77</td><td>Line Thickness Correction - Generation Mode - Sub Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-75 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
</table>

<table>
<tr><th colspan="4">Mode No.
(Class 1, 2 and 3)</th><th>Function</th><th>Settings</th></tr>
<tr><td>4-903</td><td colspan="5">Filter Setting</td></tr>
<tr><td></td><td>78</td><td>Line Thickness Correction - Setting in Text Mode</td><td>S</td><td>Selects the line thickness setting in generation mode.
<table>
<tr><th></th><th>Main Scan</th><th>Sub Scan</th></tr>
<tr><td>0:</td><td>No Correction</td><td>No Correction</td></tr>
<tr><td>1:</td><td>No Correction</td><td>Thinner 1</td></tr>
<tr><td>2:</td><td>No Correction</td><td>Thinner 2</td></tr>
<tr><td>3:</td><td>No Correction</td><td>Thicker</td></tr>
<tr><td>4:</td><td>Thinner 1</td><td>No Correction</td></tr>
<tr><td>5:</td><td>Thinner 1</td><td>Thinner 1</td></tr>
<tr><td>6:</td><td>Thinner 1</td><td>Thinner 2</td></tr>
<tr><td>7:</td><td>Thinner 1</td><td>Thicker</td></tr>
<tr><td>8:</td><td>Thinner 2</td><td>No Correction</td></tr>
<tr><td>9:</td><td>Thinner 2</td><td>Thinner 1</td></tr>
<tr><td>10:</td><td>Thinner 2</td><td>Thinner 2</td></tr>
<tr><td>11:</td><td>Thinner 2</td><td>Thicker</td></tr>
<tr><td>12:</td><td>Thicker</td><td>No Correction</td></tr>
<tr><td>13:</td><td>Thicker</td><td>Thinner 1</td></tr>
<tr><td>14:</td><td>Thicker</td><td>Thinner 2</td></tr>
<tr><td>15:</td><td>Thicker</td><td>Thicker</td></tr>
</table>
Line Thickness:
Thicker > No Correction > Thinner 1 > Thinner 2
<i>Refer ‘Line Width Correction’ in section 2.</i></td><td>0 ~ 15
1/step
5</td></tr>
<tr><td></td><td>79</td><td>Line Thickness Correction - Threshold in Text Mode - Main Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-78 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
<tr><td></td><td>80</td><td>Line Thickness Correction - Threshold in Text Mode - Sub Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-78 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
</table>

<table>
<tr><th colspan="4">Mode No.
(Class 1, 2 and 3)</th><th>Function</th><th>Settings</th></tr>
<tr><td>4-903</td><td colspan="5">Filter Setting</td></tr>
<tr><td></td><td>81</td><td>Line Thickness Correction - Setting in Text/Photo Mode</td><td>S</td><td>Selects the line thickness setting in generation mode.
<table>
<tr><th></th><th>Main Scan</th><th>Sub Scan</th></tr>
<tr><td>0:</td><td>No Correction</td><td>No Correction</td></tr>
<tr><td>1:</td><td>No Correction</td><td>Thinner 1</td></tr>
<tr><td>2:</td><td>No Correction</td><td>Thinner 2</td></tr>
<tr><td>3:</td><td>No Correction</td><td>Thicker</td></tr>
<tr><td>4:</td><td>Thinner 1</td><td>No Correction</td></tr>
<tr><td>5:</td><td>Thinner 1</td><td>Thinner 1</td></tr>
<tr><td>6:</td><td>Thinner 1</td><td>Thinner 2</td></tr>
<tr><td>7:</td><td>Thinner 1</td><td>Thicker</td></tr>
<tr><td>8:</td><td>Thinner 2</td><td>No Correction</td></tr>
<tr><td>9:</td><td>Thinner 2</td><td>Thinner 1</td></tr>
<tr><td>10:</td><td>Thinner 2</td><td>Thinner 2</td></tr>
<tr><td>11:</td><td>Thinner 2</td><td>Thicker</td></tr>
<tr><td>12:</td><td>Thicker</td><td>No Correction</td></tr>
<tr><td>13:</td><td>Thicker</td><td>Thinner 1</td></tr>
<tr><td>14:</td><td>Thicker</td><td>Thinner 2</td></tr>
<tr><td>15:</td><td>Thicker</td><td>Thicker</td></tr>
</table>
Line Thickness:
Thicker > No Correction > Thinner 1 > Thinner 2
<i>Refer ‘Line Width Correction’ in section 2.</i></td><td>0 ~ 15
1/step
5</td></tr>
<tr><td></td><td>82</td><td>Line Thickness Correction Threshold in Text/Photo Mode - Main Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-81 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
<tr><td></td><td>83</td><td>Line Thickness Correction Threshold in Text/Photo Mode - Sub Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-81 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
<tr><td></td><td>84</td><td>Scanner Gamma Setting in Text Mode</td><td>S</td><td>Selects the scanner and printer gamma settings used when ‘Service Mode’ for Text mode is selected.
0: Scanner gamma for ‘Soft’ is used.
1: Scanner gamma for ‘Normal’ is used.
2: Scanner gamma for ‘Sharp’ is used.</td><td>0 ~ 5
1/step
1</td></tr>
<tr><td></td><td>85</td><td>Scanner Gamma Selection in Text/Photo Mode</td><td>S</td><td>Selects the scanner and printer gamma settings used when ‘Service Mode’ for Text/Photo mode is selected.
0: Scanner gamma for ‘Photo Priority’ is Sused.
1: Scanner gamma for ‘Normal’ is used.
2: Scanner gamma for ‘Text Priority’ is used.</td><td>0 ~ 5
1/step
1</td></tr>
</table>

Mode No. (Class 1, 2 and 3)				Function	Settings
4-904	IPU Setting-1				
	2	Gradation Processing Selection - Photo	S	Selects the gradation processing procedure. 0: Three-gradation error diffusion 1: Four-gradation error diffusion 2: 8" x 8" dither matrix 3: 6" x 6" dither matrix 4: 4" x 4" dither matrix *A larger dither matrix gives coarser reproduction of halftones. This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 4 **1**
	3	Gradation Processing Selection - Text/Photo	S	Selects the gradation processing procedure. 0: Three-gradation error diffusion 1: Four-gradation error diffusion This SP is ignored unless the user selects 'Service Mode' in UP mode.	0 ~ 1 **1**
	4	Forced Binary Mode	S	1: Binary processing is done for all image modes.	**0: No** 1: Yes
	5	Laser Pulse Positioning in Text/Photo Mode	S	Selects whether phase control is done in text/photo mode or not. *This mode is available when 0 is selected with SP4-904-003.*	**0: No** 1: Yes
	6	Smoothing Filter Level in Photo Mode	S	Selects the smoothing filter level in photo mode. 0: None 1: Weak 5: Strong	0 ~ 5 **2**
	7	Texture Erase Filter Level in Text/Photo Mode	S	Selects the strength of the filter for erasing texture from the image in text/photo mode. 0: None 1: Weak 2: Strong	0 ~ 2 **0**
	20	Thin Line Mode in Laser Writing - Text	S	Selects thin line mode level in laser writing for text mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode - Strong	0 ~ 2 **1**
	22	Thin Line Mode in Laser Writing - Text/Photo	S	Selects thin line mode level in laser writing for text/photo mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode - Strong	0 ~ 2 **1**
	23	Thin Line Mode in Laser Writing - Pale	S	Selects thin line mode level in laser writing for pale mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode – Strong	0 ~ 2 **1**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
4-904	IPU Setting-1				
	24	Thin Line Mode in Laser Writing - Generation	S	Selects thin line mode level in laser writing for generation mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode – Strong	0 ~ 2 **1**
4-905	Image Data Path				
	1	Image Data Path - Filtering/ Magnification	S	Selects one of the following video data outputs, which will be used for printing. 0: Magnification → Filtering 1: Filtering → Magnification 2: Pre-filter → Magnification → Filtering 3: Pre-filter → Filtering → Magnification **4: Normal operation**	
				Do not change the value.	
	4	Printout Type selection	S	Selects one of the following video data outputs, which will be used for the printer controller **0: Normal operation** 1: Black/White 2: Not printed out 3: Application through	
				Do not change the value.	
4-906	Image Processing Priority in Text/Photo Mode				
			S	Selects either text priority or photo priority for text/photo mode. Photo priority: Background erase is off Letter priority: Background erase is on.	0: Photo priority **1: Text priority**
				This SP is ignored unless the user selects 'Service Mode' in UP mode.	
4-909	IPU Setting-2				
			S	***Designer use only. Do not change the value.***	
4-910	Data Compression				
	3	ABS Core	S	***Designer use only. Do not change the value.***	

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
4-911	HDD 1 Front (Black)				
	1	HDD 1 Media Check	S	Checks for bad sectors on hard disk 1 that develop during machine use. This takes 4 minutes. **All the image data on this disk is erased, and the stamp data is erased from both disks.**	
				This SP mode should be done when an abnormal image is printed. There is no need to do this at installation because the hard disk firmware already contains bad sector information, and damage is not likely during transportation. *Bad sectors detected with this SP mode will be stored in the NVRAM with the bad sector data copied across from the firmware.* *If the machine detects over 50 bad sectors, SC364 will be generated. At this time, use SP4-911-2.*	
	2	HDD 1 Formatting	S	Formats hard disk 1. This takes 4 minutes.	Start
				Do not turn off the main power switch during this process.	
	6	HDD 1 Bad Sector Information Reset		Resets the bad sector information which is stored in the NVRAM.	
				This SP should be used when the hard disk is replaced.	
	7	HDD 1 Bad Sector Display	S	Displays the number of bad sectors there are on hard disk 1.	Total: 0 Copy: 0 Printer: 0 AF (Copy Server): 0
				If the machine detects a total of over 50 bad sectors on the disk, SC364 will be generated. At this time, use SP4-911-2.	
	8	HDD 1 Model Name Display		Displays the model name of HDD 1.	
				If the HDD is not installed or the HDD connector is not connected, SC360 will be displayed. However, the user can make single copies.	

Mode No. (Class 1, 2 and 3)				Function	Settings
4-912	HDD 2 Rear (Gray)				
	1	HDD 2 Media Check		Checks for bad sectors on hard disk 2 that develop during machine use. This takes 4 minutes. **All the image data on this disk is erased, and the stamp data is erased from both disks.** *This SP mode should be done when an abnormal image is printed. There is no need to do this at installation because the hard disk firmware already contains bad sector information, and damage is not likely during transportation.* *Bad sectors detected with this SP mode will be stored in the NVRAM with the bad sector data copied across from the firmware.* *If the machine detects over 50 bad sectors, SC365 will be generated. At this time, use SP4-912-2.*	
	2	HDD 2 Formatting		Formats hard disk 2. This takes 4 minutes. ***Do not turn off the main power switch during this process.***	Start
	6	HDD 2 Bad Sector Information Reset		Resets the bad sector information which is stored in the NVRAM. *This SP should be used when the hard disk is replaced.*	
	7	HDD 2 Bad Sector Display	S	Displays the number of bad sectors there are on hard disk 2. *If the machine detects a total of over 50 bad sectors on the disk, SC365 will be generated. At this time, use SP4-912-2.*	Total: 0 Copy: 0 Printer: 0 AF (Copy Server): 0
	8	HDD 2 Model Name Display		Displays the model name of HDD 2. *If the HDD is not installed or the HDD connector is not connected, SC361 will be displayed. However, the user can make single copies. (See Detailed Section Descriptions – Others for details on the use of the two hard disks.)*	
4-913	HDD Interface Type Selection				
			S	***Designer use only. Do not change this setting.***	**0: Ultra DMA/33 I/F** 1: Multiword DMA I/F
4-914	Forced HDD Selection				
				Designer use only. Do not change this setting.	**0: Default** 1: HDD1 2: HDD2

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
5-019	Tray Paper Size Selection				
	1	1st Tray	B	Selects the paper size in the 1st tray.	A4 81/2" x 11" A3 B4 A4R 11" x 17" 81/2" x 14"R 81/2" x 11"R
	6	6th Tray	B	Selects the paper size in the 6th tray (tray 3 of the optional LCT).	A4 B5 A5 A5R 81/2" x 11" 51/2" x 81/2" 51/2" x 81/2"R
5-024	mm/inch Display Selection				
			S	Selects what unit is used. *After selecting the unit, turn the main power switch off and on.*	**0: mm** 1: inch
5-038	Job Memory in Sample Copy				
			S	Selects whether Next Job can be set before sample copy is finished. 0: Next Job cannot be set until sample copy is finished. 1: Next Job can be set before sample copy is finished.	
5-104	A3/DLT Double Count				
			S	Specifies whether the counter is doubled for A3/11" x 17" paper. *If "1" is selected, the total counter and the current user code counter count up twice when A3/11" x 17" paper is used.*	**NO** YES
5-106	ID Level Setting				
	6	ADS Level Selection	S	Selects the image density level that is used in ADS mode.	1 ~ 9 1 notch/step **5**
5-112	Non-standard Paper Selection				
			S	Selects whether a non-standard paper size can be input for trays 2 and 3 (universal tray) or not. *If "Yes" is selected, the customer will be able to input a non-standard paper size using a UP mode.*	**NO** YES
5-113	Optional Counter Type				
			S	***This SP is for Japan only. Do not change the value.***	0 ~ 5 1/step **0**
5-118	Disable Copying				
			S	Disables copying. *The setting should always be "0".*	**0: No** 1: Yes

Mode No. (Class 1, 2 and 3)				Function	Settings
5-120	Mode Clear-Opt. Controller Removal				
			S	*This function is for Japanese machines only.*	**0: Yes** 1: Stand-by 2: No
5-121	Counter Up Timing				
			S	Determines the key counter count up timing. 0: The key counter counts up at paper feed timing. 1: The key counter counts up when the paper exits to the finisher tray. *This setting does not affect the timing of the copier total counter.*	**0: Feed** 1: Exit
5-127	APS Mode				
			S	Selects the availability of APS mode. 0: APS can be used 1: APS cannot be used	**0: Yes** 1: No
5-131	Paper Size Type Selection				
			B	Selects the paper size type (for originals and copy paper). (The default setting depends on the settings of DIP SW 1 and 2 on the SICU.) *After changing the value, turn the main power switch off and on.*	0: Japan **1: North America** **2: Europe** **3: China**
5-212	Paper Print Setting				
	3	Page Print Position Side - Side to Side	S	Adjusts the page print position for the reverse side when compared to the front side. –10 (To the right) ~ 10 (To the left)	–10 ~ 10 mm 1 mm/step **0**
	4	Page Print Position Up and Down	S	Adjusts the page print position for the reverse side when compared to the front side. –10 (Upper) ~ 10 (Lower)	–10 ~ 10 mm 1 mm/step **0**
5-501	PM Alarm Interval				
			S	Set the PM alarm interval. A message is displayed on the screen when the PM counter reaches this value x 1,000. *The message can be turned off by the following procedure: Clear Modes key – 0 – Clear key – 0 – Clear key (hold for more than 3 seconds). However, the PM counter is not cleared. To clear the PM counter, use SP7-804.*	0 ~ 999 (k) **0 (No PM Alarm)**
5-504	Jam Alarm Interval (RDS Function)				
	1	Jam Alarm Level	S	***Japanese version only. Do not change the setting.***	0: Z 1: L 2: M **3: H**
	2	Jam Alarm Long Time	S	***Japanese version only. Do not change the setting.***	0: OFF **1: ON**
5-505	Error Alarm (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	0 ~ 255 (k) **30 k**

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
5-513	PM Call Interval (RDS Function)				
	1	Copy Paper Standard	S	***Japanese version only. Do not change the setting.***	0 ~ 9999 k **300 k** 1 k step
	2	Original Paper Standard	S	***Japanese version only. Do not change the setting.***	0 ~ 9999 k **300 k** 1 k step
5-514	PM Call On/Off Setting				
	1	Copy Paper Standard	S	***Japanese version only. Do not change the setting.***	0: No **1: Yes**
	2	Original Paper Standard	S	***Japanese version only. Do not change the setting.***	**0: No** 1: Yes
5-590	Auto Call Setting (RSS Function)				
	2	Door Open	S	***Japanese version only. Do not change the setting.***	0: OFF **1: ON**
	3	Paper Supply	S	***Japanese version only. Do not change the setting.***	**0: OFF** 1: ON
	4	Staple Supply	S	***Japanese version only. Do not change the setting.***	**0: OFF** 1: ON
	5	Toner Supply	S	***Japanese version only. Do not change the setting.***	**0: OFF** 1: ON
5-801	Memory All Clear				
	1	ALL		Resets all correction data for process control and all software counters. Also, returns all modes and adjustments to the default settings. Settings for the SICU and BCU can be cleared separately (marked with an S or a B in the Mode No column of this table). See the “Memory All Clear” section for how to use this SP mode correctly. Touch “Start” for over 3 seconds, then turn the main power switch off and on.	Start
	2	SICU			
	3	BCU			
				Normally, this SP mode should not be used. *It is used only after replacing the NVRAM, or when the copier malfunctions due to a damaged NVRAM.* *The LCD coordinates are also cleared, see “Touch Screen Calibration”.*	
5-802	Printer Free Run				
				Press “On” on the display, then go to copy mode. Input the required settings, then press the “Start” key to start the free run. The free run stops when the simulation for the set number of copies is finished.	
				Before starting the free run, disconnect the finisher connector. Otherwise, a paper jam is detected.	
5-803	Input Check				
				Displays the signals received from sensors and switches. See the “Input Check” section for details.	

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
5-804	Output Check				
				Turns on the electrical components individually for test purposes. See the "Output Check" section for details.	ON OFF
5-811	Machine Serial Number				
	1	Machine Serial Number	S	Displays the machine serial number. The number can be reinput using the number keys.	
	3	ID 2 Code	S	*This function is for Japanese machines only.*	
5-812	Phone No. Setting for Servicing				
	1	Phone No. for Servicing	S	Use this to input the telephone number of the service representative (this is displayed when a service call condition occurs.)	
				Press the "•" key to input a pause. *Press the "Clear modes" key to delete the telephone number.*	
	2	Fax No. for SMC Report	S	Use this to input the telephone number of the service representative. This number is printed on the SMC print.	
5-816	CSS Function (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	
5-821	CSS PI Device Code (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	0 ~ 4 **0**
5-907	Plug and play				
				This SP mode is for designer use only.	
5-914	Printer Counter Display				
			S	Selects whether or not the total printer counter is displayed in the UP mode.	**Off** On
5-915	Mechanical Counter Detection				
				Checks whether the mechanical counter inside the inner cover is connected or not.	0: Not detected 1: Detected 2: Unknown
5-917	GPC Counter				
				Japanese version only. Do not change the setting.	
5-918	A3/DLT Counter Display				
			S	Selects whether the A3/DLT counter is displayed in UP mode or when the "Total Counter" key is pressed.	
5-954	Copy Server Password Check				
			S	If "1" is selected, when a file in the copy server is selected, the password for that file is displayed.	**0: Normal** 1: Display the password.
5-965	Delete All the Saved Files				
				Deletes all the copy server files stored in the HDD.	

Mode No. (Class 1, 2 and 3)				**Function**	**Settings**
5-967	Copy Server: Disable Function				
			S	If “1” is selected, the copy server function is disabled. *Turn the main switch off and on after changing the setting.*	**0: Normal** 1: Disable copy server
5-968	Delete All the Stored Files in CD				
				Deletes all the copy server files stored in the CD currently in the CD-RW.	
5-990	SMC Print				
	1	All		Prints all the system parameter lists. See the “System Parameter and Data Lists” section for how to print the lists.	Start
	2	SP		Prints the SP mode data list. See the “System Parameter and Data Lists” section for how to print the lists.	Start
	3	User Program		Prints the UP mode data list. See the “System Parameter and Data Lists” section for how to print the lists.	Start
	4	Logged Data		Prints the machine status history data list. See the “System Parameter and Data Lists” section for how to print the lists.	Start
6-006	DF Registration Adjustment				
	1	Side-to-Side	B	Adjusts the printing side-to-side registration in the ADF mode. *Use the “•” key to toggle between + and –.*	–3 ~ +3 0.1 mm/step **+0.0 mm**
	2	Leading Edge (Thin Original)	B	Adjusts the original stop position. *Use the “•” key to toggle between + and –.*	–10 ~ +10 0.13 mm/step **+0.0 mm**
	3	Leading Edge (Duplex-1st)	B	Adjusts the original stop position against the original left scale in one-sided original mode. *Use the “•” key to toggle between + and –.*	–29 ~ +29 0.13 mm/step **+0.0 mm**
	4	Leading Edge (Duplex-2nd)	B	Adjusts the original stop position against the original left scale in two-sided original mode. *Use the “•” key to toggle between + and –.*	–29 ~ +29 0.13 mm/step **+0.0 mm**
6-007	ADF Input Check				
	1	Group 1		Displays the signals received from sensors and switches of the ADF. See the “Input Check” section for details.	
	2	Group 2		Displays the signals received from sensors and switches of the ADF. See the “Input Check” section for details.	
	3	Group 3		Displays the signals received from sensors and switches of the ADF. See the “Input Check” section for details.	
6-008	ADF Output Check				
				Turns on the electrical components of the ADF individually for test purposes. See the “Output Check” section for details.	

Mode No. (Class 1, 2 and 3)				Function	Settings
6-009	DF Free Run (Two-sided Original)				
				Performs an ADF free run in two-sided original mode. Press “1” to start.	**OFF** ON
				This is a general free run controlled from the copier. For more detailed free run modes, see the ‘Test Points/Dip Switches/LEDs’ section.	
6-016	ADF Motor Speed Adjustment				
				After pressing the Start key, the machine automatically adjusts the speeds of the ADF motors in the following order: Feed-in motor → Transport Belt Motor → Feed-out Motor (High) → Feed-out Motor (Low)	
6-105	Staple Position Adjustment				
			B	Adjusts the stapling position in the main scan direction	–1~ +3.5 0.5 mm/step **+0.0 mm**
				Use the “•” key to toggle between + and –. A larger value causes the stapling position to shift outward.	
6-107	Finisher Free Run				
	1	Staple Mode		The finisher simulates staple mode operation. Press [1] to start the free run. To stop the free run, press [0].	
	2	Shift Mode		The finisher simulates staple mode free run with tray shifting (without stapling). Press [1] to start the free run.	
6-113	Punch Hole Position Adjustment				
			B	Adjusts the punch hole position in the sub-scan direction for the punch unit.	–7.5 ~ +7.5 0.5 mm/step **0 mm**
				Use the “•” key to toggle between + and –. A larger value shifts the punch holes towards the edge of the paper.	
6-116	Sheet Conversion (Thick Paper)				
			B	Multiply the normal limit by this number to determine the staple limit number for thick paper mode.	1 ~ 3 **3**
6-117	Finisher Input Check				
	1	Group 1		Displays the signals received from sensors and switches of the finisher. See the “Input Check” section for details.	
	2	Group 2		Displays the signals received from sensors and switches of the finisher. See the “Input Check” section for details.	
	3	Group 3		Displays the signals received from sensors and switches of the finisher. See the “Input Check” section for details.	
6-117	Finisher Input Check				
	4	Group 4		Displays the signals received from sensors and switches of the finisher. See the “Input Check” section for details.	

Mode No. (Class 1, 2 and 3)				Function	Settings
6-118	Finisher Output Check				
				Turn on the electrical components of the finisher individually for test purposes. See the “Output Check” section for details.	
6-119	Punch Function Enabled (Thick Paper)				
			B	Determines whether punch mode is enabled or not in thick paper mode.	**0: No** 1: Yes
6-801	Communication Test - Tandem Job				
				This SP mode is for designer use only.	
7-001	Main Motor (Drum Motor) Operation Time				
			B	Displays the total drum rotation time.	Min.
7-002	Original Counter				
	1	Total	S	Displays the total number of fed originals.	
	2	Copy	S	Displays the total number of fed originals in copy mode.	
	3	Copy Server	S	Displays the total number of fed originals in copy server mode.	
7-003	Copy/Printer Counter				
	1	Total Count	S	Displays the total number of prints in all modes.	
	2	Copy	S	Displays the total number of prints in copy mode.	
	4	Printer	S	Displays the total number of prints in printer mode.	
7-006	GPC Counter				
	1	GPC Total	S	Japanese version only.	
	2	GPC Copy	S		
	3	GPC Printer	S		
7-009	Rental GPC Counter				
	1	GPC Total	S	Japanese version only.	
	2	GPC Copy	S		
	3	GPC Printer	S		
7-101	Copy Counter by Paper Size				
	5	A4 Sideways	S	Displays the total number of prints by paper size.	
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Sizes	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4	S		
	142	B5 Lengthwise	S		
	160	DLT	S		
	164	LG	S		
	166	LT Lengthwise	S		
7-101	Copy Counter by Paper Size				
	172	HLT Lengthwise	S	Displays the total number of prints by paper size.	

Mode No. (Class 1, 2 and 3)				Function	Settings
7-201	Total Scan Count				
			S	Displays the total number of scanned originals.	
7-202	Original Counter by Size				
	4	A3	S	Displays the total number of scanned originals by original size.	
	5	A4	S		
	6	A5	S		
	13	B4	S		
	14	B5	S		
	32	DLT	S		
	36	LG	S		
	38	LT	S		
	44	HLT	S		
	128	Other Sizes	S		
7-204	Copy Counter by Paper Tray				
	1	1st Paper Tray	S	Displays the total number of sheets fed from each paper feed tray.	
	2	2nd Paper Tray	S		
	3	3rd Paper Tray	S		
	4	4th Paper Tray	S		
	5	5th Paper Tray	S		
7-204	Copy Counter – Paper Tray				
	6	6th Paper Tray	S	Displays the total number of sheets fed from each paper feed tray.	
7-205	Total ADF Counter				
			S	Displays the total number of originals fed by the ADF.	
7-206	Staple Counter				
			S	Displays the total number of staples used.	
7-207	Punch Counter				
			S	Displays the total number of hole punch operations.	
7-301	Total Copies By Reproduction Ratio				
	1	32% ~ 49%	S	Displays the total number of prints by reproduction ratio.	
	2	50% ~ 99%	S		
	3	100%	S		
	4	101% ~ 200%	S		
	5	201% ~ 400%	S		
	6	Direct Mag.	S		
	7	Direct Size Mag.	S		
	8	Size Mag.	S		
	9	Fixed Mag.	S		
7-304	Total Copies By Copy Mode				
	1	Letter	S	Displays the total number of prints by copy mode.	
	2	Letter/Photo	S		
	3	Photo	S		
	4	Generation	S		
	5	Pale	S		
	6	Punch	S		
	7	Multiple Copy	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-304	Total Copies By Copy Mode				
	8	Sort	S	Displays the total number of prints by copy mode.	
	9	Staple	S		
	10	Combine	S		
	11	Erase Copy	S		
	12	Duplex Copy	S		
	13	ADF	S		
	14	Double	S		
	15	2-sided Original	S		
	16	Interrupt	S		
	17	Combine Mode - 1 Side	S		
	18	Combine Mode - 2 Side	S		
	19	Mini Book Mode	S		
	20	Magazine Mode	S		
	21	Batch (SADF) Mode	S		
	22	Mixed Size Mode	S		
	23	Thin Original	S		
7-305	Total Copies in Multiple Copy Mode				
	1	1 to 1	S	Displays the total number of prints by multiple copy quantity.	
	2	1 to 2 ~ 5	S		
	3	1 to 6 ~ 10	S		
	4	1 to 11 ~ 20	S		
	5	1 to 21 ~ 50	S		
	6	1 to 51 ~ 100	S		
	7	1 to 100 ~ 300	S		
	8	1 to 301 ~	S		
7-306	Copy: Each Mode Job				
	1	Sort	S	Displays the total number of copy jobs that have been done for various modes.	
	2	Staple	S		
	3	Punch	S		
	4	Next Job	S		
	5	Sample Copy	S		
7-320	Copy Server: Scanned Storage				
	1	Number of Scan	S	Displays the total number of stored originals in the copy server.	
7-321	Copy Server: Original Counter by Size				
	4	A3	S	Displays the total number of stored originals in the server by size.	
	5	A4	S		
	6	A5	S		
	13	B4	S		
	14	B5	S		
	32	DLT	S		
	36	LG	S		
	38	LT	S		
	44	HLT	S		
	128	Other Size	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-323	Copy Server: Each Size of Copies				
	5	A4 Sideways	S	Displays the total number of prints made from the copy server by paper size.	
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Sizes	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4	S		
	142	B5 Lengthwise	S		
	160	DLT	S		
	164	LG	S		
	166	LT Lengthwise	S		
	172	HLT Lengthwise	S		
7-324	Copy Server: Print Job Counter				
	1	Duplex Job	S	Displays the total number of copy jobs made from the copy server.	
	2	Sort Job	S		
	3	Staple Print Job	S		
	4	Punch Print Job	S		
	5	Sample Copy	S		
	6	First Page Print	S		
7-325	Copy Server: Print Job Page Distribution				
	1	1	S	Displays the number of jobs by number of pages, made from the copy server.	
	2	2	S		
	3	3 - 5	S		
	4	6 - 10	S		
	5	11 -	S		
7-326	Copy Server: Print Job File Distribution				
	1	1	S	Displays the number of jobs by the number of consecutive files in the job, made from the copy server.	
	2	2 - 5	S		
	3	6 - 10	S		
	4	11 -	S		
7-327	Copy Server: Print Job Set Distribution				
	1	1 to 1	S	Displays the total number of prints by multiple copy quantity, using the copy server.	
	2	1 to 2 ~ 5	S		
	3	1 to 6 ~ 10	S		
	4	1 to 11 ~ 20	S		
	5	1 to 21 ~ 50	S		
	6	1 to 51 ~ 100	S		
	7	1 to 100 ~ 300	S		
	8	1 to 301 ~	S		
7-328	Copy Server: Copy Number of Each Job				
	1	Duplex Copy	S	Displays the total number of duplex prints of one-sided originals from the copy server.	
7-328	Copy Server: Copy Number of Each Job				
	2	Duplex Original	S	Display the total number of prints of two-sided originals from the copy server.	

Mode No. (Class 1, 2 and 3)				Function	Settings
7-330	Tandem Job				
			S	Displays the number of jobs made as the master in tandem mode.	0
7-331	Tandem: Copy				
	1	Master: Copy	S	Displays the number of copies made in tandem mode as the master.	
	2	Slave: Copy	S	Displays the number of copies made in tandem mode as the slave.	
7-332	Tandem/Master: Copy				
	1	Original Mode: Text	S	Displays the number of copies made in each master mode.	
	2	Original Mode: Text/Photo	S		
	3	Original Mode: Photo	S		
	4	Original Mode: Generation	S		
	5	Original Mode: Pale	S		
	6	Punch	S		
	7	Repeat	S		
	8	Sort	S		
	9	Staple	S		
	10	Series	S		
	11	Erase	S		
	12	Duplex Copy	S		
	13	ADF Mode	S		
	14	Double Copy	S		
	15	Duplex Original	S		
	16	Interrupt	S		
	17	Combine 1 Side	S		
	18	Combine 2 Side	S		
	19	Booklet	S		
	20	Magazine	S		
	21	Batch Mode	S		
	22	Mixed Sizes	S		
	23	Thin	S		
7-333	Tandem/Slave: Copy				
	1	Original Mode: Text	S	Displays the number of copies made in each slave mode.	
	2	Original Mode: Text/Photo	S		
	3	Original Mode: Photo	S		
	4	Original Mode: Generation	S		
	5	Original Mode: Pale	S		
	6	Punch	S		
	7	Repeat	S		
	8	Sort	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-333	Tandem/Slave: Copy				
	9	Staple	S	Displays the number of copies made in each slave mode.	
	10	Series	S		
	11	Erase	S		
	12	Duplex Copy	S		
	13	ADF Mode	S		
	14	Double Copy	S		
	15	Duplex Original	S		
	16	Interrupt	S		
	17	Combine 1 Side	S		
	18	Combine 2 Side	S		
	19	Booklet	S		
	20	Magazine	S		
	21	Batch Mode	S		
	22	Mixed Sizes	S		
	23	Thin	S		
7-401	Total SC Counter				
			S	Displays the total number of service calls that have occurred.	
7-403	SC History				
	1	Latest	S	Displays the latest 10 service call codes.	
	2	Latest 1st	S		
	3	Latest 2nd	S		
	4	Latest 3rd	S		
	5	Latest 4th	S		
	6	Latest 5th	S		
	7	Latest 6th	S		
	8	Latest 7th	S		
	9	Latest 8th	S		
	10	Latest 9th	S		
7-501	Total Jam Counter				
			S	Displays the total number of copy jams and original jams.	
7-502	Total Copy Jam Counter				
			S	Displays the total number of copy jams.	
7-503	Total Original Jam Counter				
			S	Displays the total number of original jams.	

Mode No. (Class 1, 2 and 3)				Function	Settings
7-504	Copy Jam Counter by Jam Location				
	These are jams when the paper does not activate the sensor.				
	1	At Power On	S	Displays the total number of copy jams by location. The information in brackets shows the sensors that are used to detect these jams.	
	3	1st Paper Tray	S	(1st Paper Feed Sensor)	
	4	2nd Paper Tray	S	(2nd Paper Feed Sensor)	
	5	3rd Paper Tray	S	(3rd Paper Feed Sensor)	
	6	4th Paper Tray	S	(4th Paper Feed Sensor)	
	7	5th Paper Tray	S	(5th Paper Feed Sensor)	
	8	6th Paper Tray	S	(6th Paper Feed Sensor)	
	9	LCT Relay Sensor	S		
	10	LCT Exit Sensor	S		
	12	Relay Sensor	S		
	13	Registration Sensor	S		
	15	Fusing Exit Sensor	S		
	16	Exit Sensor	S		
	19	Duplex Entrance Sensor	S		
	20	Duplex Transport Sensor 1	S		
	21	Duplex Transport Sensor 2	S		
	22	Duplex Transport Sensor 3	S		
	23	Inverter Tray Paper Sensor	S		
	25	Entrance Sensor - Fin.	S		
	26	Upper Tray Exit Sensor - Fin.	S		
	27	Shift Tray Exit Sensor - Fin.	S		
	28	Stapler Tray Entrance Sensor - Fin.	S		
	29	Stapler Tray Paper Sensor - Fin.	S		
	35	Entrance Sensor - FIN Staple Tray	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-504	Copy Jam Counter by Jam Location				
	These are jams when the paper stays at the sensor.				
	53	1st Paper Tray	S	(1st Paper Feed Sensor)	
	54	2nd Paper Tray	S	(2nd Paper Feed Sensor)	
	55	3rd Paper Tray	S	(3rd Paper Feed Sensor)	
	56	4th Paper Tray	S	(4th Paper Feed Sensor)	
	57	5th Paper Tray	S	(5th Paper Feed Sensor)	
	58	6th Paper Tray	S	(6th Paper Feed Sensor)	
	59	LCT Relay Sensor	S		
	60	LCT Exit Sensor	S		
	62	Relay Sensor	S		
	63	Registration Sensor	S		
	65	Fusing Exit Sensor	S		
	66	Exit Sensor	S		
	69	Duplex Entrance Sensor	S		
	70	Duplex Transport Sensor 1	S		
	71	Duplex Transport Sensor 2	S		
	72	Duplex Transport Sensor 3	S		
	73	Inverter Tray Paper Sensor	S		
7-505	Original Jam Counter by Jam Location				
	1	At Power On	S		
	3	ADF Feed-in Sensor	S	Detected by the entrance and registration sensors	
	4	ADF Feed-out Sensor	S	Detected by the exit and inverter sensors.	
7-506	Jam Counter by Copy Size				
	5	A4 Sideways	S	Displays the total number of copy jams by paper size.	
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Size	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4 Lengthwise	S		
	142	B5 Lengthwise	S		
	160	DLT	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-506	Jam Counter by Copy Size				
	164	LG	S	Displays the total number of copy jams by paper size.	
	166	LT Lengthwise	S		
	172	HLT Lengthwise	S		
7-507	Jam History				
	1	Copy: Latest	S	Displays the following items for the most recent 10 jams. 1. Last 5 digits of the total counter value 2. Paper size 3. Detected position 4. Stuck or not fed	
	2	Latest 1st	S		
	3	Latest 2nd	S		
	4	Latest 3rd	S		
	5	Latest 4th	S		
	6	Latest 5tht	S		
	7	Latest 6th	S		
	8	Latest 7th	S		
	9	Latest 8th	S		
	10	Latest 9th	S		
	11	Original: Latest	S		
	12	Latest 1st	S		
	13	Latest 2nd	S		
	14	Latest 3rd	S		
	15	Latest 4th	S		
	16	Latest 5th	S		
	17	Latest 6th	S		
	18	Latest 7th	S		
	19	Latest 8th	S		
	20	Latest 9th	S		
7-617	Parts PM Alarm Counter Display				
	1	Copy Paper Standard	S	***This counter is used for the Japanese market only.***	
	2	Original Paper Standard		***This counter is used for the Japanese market only.***	
7-618	Parts PM Alarm Counter Clear				
	1	Copy Paper Standard		Clears the counter of SPS7-617-1.	
	2	Original Paper Standard		Clears the counter of SPS7-617-2.	
7-801	ROM Version Display				
				Displays the ROM versions. 001: SICU 002: BCU 003: CSS (P1) – Japan only 004: HDC (Hard disk controller) 005: Scanner 006: ADF 007: Finisher 008: Printer	
7-803	PM Counter Display				
			S	Displays the PM counter since the last PM.	
7-804	PM Counter Reset				
				Resets the PM counter.	Start

Mode No. (Class 1, 2 and 3)				Function	Settings
7-807	SC/Jam Counter Reset				
				Resets the SC and jam counters. Press “Start” to reset.	Start
7-808	Counter Clear				
				Resets all counters, except for the total counters (SP 7-003): Press “Start” to reset.	Start
7-810	Access Code Clear				
				Resets both the key operator code and the weekly timer code (‘key operator code for off setting’). Press “Start” to reset.	Start
7-816	Copy Counter Clear- Paper Tray				
	1	Paper Tray 1		Resets the total copy counter by paper tray. These SP modes can be used after replacing the pick-up, feed, and separation rollers in the paper feed stations.	Start
	2	Paper Tray 2			
	3	Paper Tray 3			
	4	Paper Tray 4			
	5	Paper Tray 5			
	6	Paper Tray 6			
7-817	Total ADF Counter Reset				
				Resets the ADF Counter (SP7-205). Press “Start” to reset.	Start
7-822	Copy Counter Clear - Magnification				
				Resets all counters of SP7-301.	Start
7-825	Total Counter Clear				
				Resets the electrical total counter.	Start
				Usually, this SP mode is done at installation. *This SP mode works only once when the counter value is negative.*	
7-826	Option Counter Error Counter				
	1	Total	S	For Japanese version only.	
	2	Staple	S		
7-827	Option Counter Error Counter Clear				
				For Japanese version only.	
7-828	Punch Counter Clear				
				Resets the punch counter (SP7-207)	
7-829	Rental GPC Counter Clear				
				For Japanese version only.	
7-902	SC Details				
				Displays details about the latest SCs. Not all SCs have these details. For designer use only.	
7-904	Copy Counter Clear – Copy Mode				
				Resets all counters of SP7-304, 7-331, 7-332, and 7-333.	Start
7-905	Copy Counter Clear – Multiple Copy Mode				
				Resets all counters of SP7-305.	Start
7-906	Original Counter Clear – Size				
				Resets all counters of SP7-202.	Start
7-907	Job Counter Clear				
				Resets all counters of SP7-306, and 7-330.	Start

Mode No. (Class 1, 2 and 3)			Function	Settings
7-908	Copy: Original Counter Clear			
			Resets SP7-002-2.	Start
7-920	Copy Server: Scanned Storage Counter Clear			
			Resets the counter of SP7-320.	Start
7-921	Copy Server: Original Counter Clear - Size			
			Resets all counters of SP7-321.	Start
7-923	Copy Server: Print Counter Clear			
			Resets all counters of SP7-323.	Start
7-924	Copy Server: Print Job Counter Clear			
			Resets all counters of SP7-324.	Start
7-925	Copy Server Print Job Page Distribution Clear			
			Resets all counters of SP7-325.	Start
7-926	Copy Server: Print Job File Distribution Clear			
			Resets all counters of SP7-326.	Start
7-927	Copy Server: Print Job Set Distribution Clear			
			Resets all counters of SP7-327.	Start
7-928	Copy Server: Copy Counter Clear – Copy Mode			
			For Japanese machines only.	
7-990	SC990 Information			
		S	Designer use only.	

4.2.3 TEST PATTERN PRINTING (SP2-902)

NOTE: Do not operate the machine until the test pattern is printed out completely. Otherwise, an SC may occur.

1. Access the SP mode which contains the test pattern you need.
2. Touch the “Copy Mode” key on the operation panel to access the copy mode display.
3. Select the paper size.
4. Press the “Start” key to print the test pattern.
5. After checking the test pattern, exit copy mode by touching the “SP Mode” key.
6. Exit the SP mode.

NOTE: Test patterns are printed out until the main switch is turned off and on. Use this test pattern to test the printer controller.

Test Pattern Table (SP2-902-2: Test Pattern Printing – IPU)

No.	Test Pattern	No.	Test Pattern
0	None	7	Vertical Strips
1	Vertical Line (1-dot)	8	Grayscale (Vertical)
2	Vertical Line (2-dot)	9	Grayscale (Horizontal)
3	Horizontal Line (1-dot)	10	Cross Pattern
4	Horizontal Line (2-dot)	11	Argyle Pattern
5	Alternating Dot Pattern	12	Frequency (Horizontal)
6	Grid Pattern (1-dot)	13	Frequency (Vertical)

Test Pattern Table (SP2-902-3: Test Pattern Printing – Printing)

No.	Test Pattern	No.	Teat Pattern
1	Alternating Dot Pattern (1,024-dot)	15	16 Trimming Area
2	Alternating Dot Pattern (4-dot)	16	Argyle Pattern
3	Alternating Dot Pattern (2-dot)	17	Line Cross Stitch
4	Alternating Dot Pattern (1-dot)	18	Black Band (Vertical)
5	Grid Pattern (1-dot 0 ch)	19	Black Band (Horizontal)
6	Grid Pattern (1-dot 1 ch)	20	Gray Trim
7	Grid Pattern (1-dot 2 ch)	21	Stair Pattern
8	Grid Pattern (1-dot 3 ch)	22	Grayscale Vertical 20 mm
9	Vertical Line (1-dot)	23	Grayscale Vertical 40 mm
10	Horizontal Line (1-dot)	24	Grayscale Vertical 20 mm
11	Vertical Line (2-dot)	25	Grayscale Horizontal 40 mm
12	Horizontal Line (2-dot)	26	Grayscale Horizontal 20 mm
13	Grid Pattern (1-dot)	27	White (Out data mask)
14	Full Dot Pattern	28	Grid Pattern (1-dot) (0 ch mode) (Out data overlay)

4.2.4 INPUT CHECK

Main Machine Input Check (SP5-803)

1. Access SP mode.
2. Select the class 3 SP number which will access the switch or sensor you wish to check.
3. Check the status of the sensor or switch.
   NOTE: If you wish to change to another class 3 level, press the “Next” or “Prev.” key.
4. The reading (“0” or “1”) will be displayed. The meaning of the display is as follows.

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
|	|	|	|	|	|	|	|
0	0	0	0	0	0	0	0

Class 3 No.	**Bit No.**	**Description**	**Reading**	
			0	**1**
1	7	Not Used		
	6	Not Used		
	5	LCT 3rd Paper End Sensor (6th tray)	Not paper end	Paper end
	4	LCT 2nd Paper End Sensor (5th tray)	Not paper end	Paper end
	3	LCT 1st Paper End Sensor (4th tray)	Not paper end	Paper end
	2	3rd Paper End Sensor	Not paper end	Paper end
	1	2nd Paper End Sensor	Not paper end	Paper end
	0	1st Paper End Sensor	Not paper end	Paper end
2	7	Not Used		
	6	Not Used		
	5	LCT 3rd Paper Feed Sensor (6th tray)	Paper detected	No paper
	4	LCT 2nd Paper Feed Sensor (5th tray)	Paper detected	No paper
	3	LCT 1st Paper Feed Sensor (4th tray)	Paper detected	No paper
	2	3rd Paper Feed Sensor	Paper detected	No paper
	1	2nd Paper Feed Sensor	Paper detected	No paper
	0	1st Paper feed Sensor	Paper detected	No paper
3	7	Not Used		
	6	Duplex Entrance Sensor	Detected	Not detected
	5	Duplex Jogger H.P.	Not detected	Detected
	4	Duplex Transport 3 Sensor	Detected	Not detected
	3	Duplex Transport 2 Sensor	Detected	Not detected
	2	Duplex Transport 1 Sensor	Detected	Not detected

Class 3 No.	**Bit No.**	**Description**	**Reading**	
			0	**1**
3	1	Inverter Tray Paper Sensor	Detected	Not detected
	0	Duplex Connection	Connected	Not connected
4	7	Not Used		
	6	Not Used		
	5	LCT 3rd Lift Sensor (6th tray)	Lifted	No paper
	4	LCT 2nd Lift Sensor (5th tray)	Lifted	No paper
	3	LCT 1st Lift Sensor (4th tray)	Lifted	No paper
	2	3rd Lift Sensor	Lifted	No paper
	1	2nd Lift Sensor	Lifted	No paper
	0	1st Lift Sensor	Lifted	No paper
5	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Drum Unit set	Set	Not set
	2	Polygon Motor Cooling Fan Lock	No lock	Lock
	1	Toner Hopper Sensor	Toner end	Not toner end
	0	Key Counter Set	Set	Not set
6	7	Drum Motor Lock	No lock	Lock
	6	Fusing/Duplex Motor Lock	No lock	Lock
	5	XFGATE		
	4	Not used		
	3	Development Motor Lock	No lock	Lock
	2	Not used		
	1	Not used		
	0	Toner Supply Motor Sensor	Not interrupted	Interrupted
7	7	Left Front Door Safety Switch	Door closed	Door open
	6	Right Front Door Safety Switch	Door closed	Door open
	5	Paper Feed Motor Lock	No lock	Lock
	4	Guide Plate Position Sensor	In position	Out of position
	3	LCT Relay Sensor	On	Off
	2	Relay Sensor	On	Off
	1	Not Used		
	0	Registration Sensor	On	Off
8	7	Lower Bottle Inner Cap Sensor	Cap opened	Cap closed
	6	Upper Bottle Inner Cap Sensor	Cap opened	Cap closed
	5	Toner Near-end Sensor	Toner end	Toner not end
	4	Toner Collection Bottle Sensor	Bottle set	Bottle not set
	3	Toner Overflow Sensor	No lock	Lock
	2	Toner Bottle Unit Motor Lock	No lock	Lock
8	1	Lower Toner Bottle	Bottle set	Bottle not set
	0	Upper Toner Bottle	Bottle set	Bottle not set
9	7	Total Counter Set	Set	Not set
	6			

Class 3 No.	Bit No.	Description	Reading	
			0	1
9	5	Not Used		
	4	Exit Unit Set	Set	Not set
	3	Oil Supply/Cleaning Web End Sensor	Not end	End
	2	Exit Sensor	On	Off
	1	Fusing Exit Sensor	On	Off
	0	Fusing Unit Set	Set	Not set
10 (Duplex)	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		
	2	Not Used		
	1	Dip Switch 2 - SICU	On	Off
	0	Dip Switch 1 - SICU	On	Off
11	7	Not used		
	6	Not used		
	5	Not used		
	4	2nd Tray Paper Size 5	See Table 1	
	3	2nd Tray Paper Size 4		
	2	2nd Tray Paper Size 3		
	1	2nd Tray Paper Size 2		
	0	2nd Tray Paper Size 1		
12	7	Not used		
	6	Not used		
	5	Not used		
	4	3rd Tray Paper Size 5	See Table 1	
	3	3rd Tray Paper Size 4		
	2	3rd Tray Paper Size 3		
	1	3rd Tray Paper Size 2		
	0	3rd Tray Paper Size 1		
13	7	Not used		
	6	Not used		
	5	Not used		
	4	Rear Fence Return Sensor	Not detected	Return Position
	3	Front Side Fence Closed Sensor	Open	Closed
	2	Front Side Fence Open Sensor	Open	Closed
	1	Rear Side Fence Closed Sensor	Open	Closed
	0	Rear Side Fence Open Sensor	Open	Closed
14	7	Not used		
	6	Not used		
	5	Not Used		
	4	Rear Fence HP	Not detected	At home position
	3	Left Tandem Tray Set	Set	Not set

Class 3 No.	Bit No.	Description	Reading	
			0	1
14	2	Right Tandem Tray Set	Set	Not set
	1	Left 1st Tray Paper	Detected	Not Detected
	0	Right 1st Tray Paper	Detected	Not Detected
15	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Base Plate Down Sensor	Not detected	Detected
	3	1st Tray Paper Height 4	—	Paper 80 ~ 100%
	2	1st Tray Paper Height 3	—	Paper 50 ~ 80%
	1	1st Tray Paper Height 2	—	Paper 30 ~ 50%
	0	1st Tray Paper Height 1	—	Paper 0 ~ 30%
16	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Toner Supply Motor Lock	No lock	Lock
	3	Not Used		
	2	Not Used		
	1	2nd Tray Paper Height Sensor 2	See Table 2	
	0	2nd Tray Paper Height Sensor 1		
17	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		
	2	Not Used		
	1	3rd Tray Paper Height 2	See Table 2	
	0	3rd Tray Paper Height 1		
18	7	Not Used		
	6	Not Used		
	5	Not Used		
18	4	Not Used		
	3	Not Used		
	2	LCT 1st Tray Paper Size Switch 3 (4th tray)	See Table 3	
	1	LCT 1st Tray Paper Size Switch 2 (4th tray)		
	0	LCT 1st Tray Paper Size Switch 1 (4th tray)		
19	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		

Class 3 No.	Bit No.	Description	Reading	
			0	1
19	2	LCT 2nd Tray Paper Size Switch 3 (5th tray)	See Table 3	
	1	LCT 2nd Tray Paper Size Switch 2 (5th tray)		
	0	LCT 2nd Tray Paper Size Switch 1 (5th tray)		
20	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	LCT Motor Lock Signal	Lock	Not Lock
	2	LCT Door Open Switch	Closed	Open
	1	LCT Relay Sensor	On	Off
	0	LCT 3rd Tray Set	Set	Not set
21	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		
	2	Not Used		
	1	Not Used		
	0	LCT Connection	Connected	Not Connected
22	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	LCT 1st Tray Paper Height sensor 4 (4th tray)	—	Paper 80 ~ 100%
	2	LCT 1st Tray Paper Height sensor 3 (4th tray)	—	Paper 50 ~ 80%
	1	LCT 1st Tray Paper Height sensor 2 (4th tray)	—	Paper 30 ~ 50%
	0	LCT 1st Tray Paper Height sensor 1 (4th tray)	—	Paper 0 ~ 30%
23	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	LCT 2nd Tray Paper Height sensor 4 (5th tray)	—	Paper 80 ~ 100%
	2	LCT 2nd Tray Paper Height sensor 3 (5th tray)	—	Paper 50 ~ 80%
	1	LCT 2nd Tray Paper Height sensor 2 (5th tray)	—	Paper 30 ~ 50%
	0	LCT 2nd Tray Paper Height sensor 1 (5th tray)	—	Paper 0 ~ 30%

Class 3 No.	Bit No.	Description	Reading	
			0	1
24	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	LCT 3rd Tray Paper Height sensor 4 (6th tray)	—	Paper 80 ~ 100%
	2	LCT 3rd Tray Paper Height sensor 3 (6th tray)	—	Paper 50 ~ 80%
	1	LCT 3rd Tray Paper Height sensor 2 (6th tray)	—	Paper 30 ~ 50%
	0	LCT 3rd Tray Paper Height sensor 1 (6th tray)	—	Paper 0 ~ 30%

Table 1: 2nd and 3rd Tray Paper Size Switch Combination

Class 3 No.	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Paper Width	
						A/B size version	Inch version
11, 12	0	1	1	1	1	A3	DLT
	0	0	1	1	1	8 1/4" x 13"	8 1/2" x 14"
	1	0	0	1	1	A4 lengthwise	LT lengthwise
	0	1	0	0	1	A4 sideways	LT sideways
	0	0	1	0	0	8 1/2" x 13"	HLT sideways
	0	0	0	1	0	—	8" x 10 1/2"
	0	0	0	0	1	A5 sideways	8" x 10"
	1	0	0	0	0	8 k lengthwise (Taiwan Version only)	8" x 13"
	1	1	0	0	0	16 k lengthwise (Taiwan Version only)	10" x 14"
	1	1	1	0	0	16 k sideways (Taiwan Version only)	11" x 15"
	1	1	1	1	0	*	*

Table 2: 2nd and 3rd Tray Paper Height Sensor Combination

Class 3 No.	Bit 4	Bit 3	Paper Height
16, 17	1	1	70 ~ 100%
	1	0	30 ~ 70%
	0	1	10 ~ 30%
	0	0	0 ~ 10%

Table 3: LCT 1st and 2nd Paper Size Switch Combination

Class 3 No.	Bit 2	Bit 1	Bit 0	Paper Size
18, 19	1	1	1	A4 Sideways
	1	0	1	B5 Sideways
	0	1	0	A5 Sideways
	1	0	0	B5 Sideways

ADF Input Check (SP6-007)

Class 3 No.	Bit No.	Description	Reading	
			0	1
1	7	Original Set Sensor	No original	Original detected
	6	Original Width Sensor 1	No original	Original detected
	5	Original Width Sensor 2	No original	Original detected
	4	Original Width Sensor 3	No original	Original detected
	3	Entrance Sensor	No original	Original detected
	2	Registration Sensor	No original	Original detected
	1	Exit Sensor	No original	Original detected
	0	Inverter Sensor	No original	Original detected
2	7	DF Position Sensor	Down	Up
	6	APS Start Sensor	Start	Off
	5	Feed Cover Sensor	Close	Open
	4	Exit Cover Sensor	Close	Open
	3	Bottom Plate HP Sensor	At home position	Not home position
	2	Bottom Plate Position Sensor	Detected	Not detected
	1	Pick-up Roller HP Sensor	At home position	Not home position
	0	ADF Feed-in Motor Encoder Pulse		
3	7	ADF Transport Motor Encoder Pulse		
	6	ADF Feed-out Motor Encoder Pulse		
	5	Original Length Sensor	No original	Original detected
	4	Not Used		
	3	Not Used		
	2	Not Used		
	1	Not Used		
	0	Not Used		

Finisher Input Check (SP6-117)

Class 3 No.	Bit No.	Description	Reading	
			0	1
1	7	Stack Feed-out Belt HP Sensor	HP	Not HP
	6	Not Used		
	5	Shift Tray Lower Limit 1 Sensor	Off	On
	4	Shift Tray Lower Limit 2 Sensor	Off	On
	3	Stapler Tray Entrance Sensor	Not detected	Detected
	2	Shift Tray Exit Sensor	Detected	Not detected
	1	Upper Tray Exit Sensor	Detected	Not detected
	0	Entrance Sensor	Not detected	Detected
2	7	Not used		
	6	Front Door Safety Switch	Door closed	Door open
	5	Stapler Tray Paper Sensor	Detected	Not detected
	4	Staple End Sensor	End	Not end
	3	Staple Hammer HP Sensor	HP	Not HP
	2	Stapler HP Sensor	Not HP	HP
	1	Shift Tray Half-turn Sensor	HP	Not HP
	0	Jogger Fence HP Sensor	Not HP	HP
3	7	Not Used		
	6	Staple Cartridge Set Sensor	Not set	Set
	5	Stack Height Sensor 2	Off	On
	4	Stack Height Sensor 1	Off	On
	3	Not Used		
	2	Punch Waste Hopper Sensor	Full	Not full
	1	Punch HP Sensor	HP	Not HP
	0	Punch Unit Connection	Not connected	Connected
4	7	Stapler Ready	Ready	Not ready
	6	Stapler Return Sensor	HP	Not HP
	5	Exit Guide Open Sensor	HP	Not HP
	4	Stack Plate HP Sensor	Not HP	HP
	3	Pre-stack Tray Paper Sensor	Not detected	Detected
	2	Staple Waste Hopper Sensor	Not full	Full
	1	Stapler Rotation HP Sensor	Not HP	HP
	0	Upper Tray Paper Limit Sensor	Not full	Full

4.2.5 OUTPUT CHECK

NOTE: Motors keep turning in this mode regardless of upper or lower limit sensor signals. To prevent mechanical or electrical damage, do not keep an electrical component on for a long time.

Main Machine Output Check (SP5-804)

1. Access SP mode 5-804.
2. Select the SP number that corresponds to the component you wish to check.
3. Press “1”, then press # to check that component.
4. Press “0” to interrupt the test.
5. If you wish to check another component, press the “Next” or “Prev.” Key.

No.	Description	No.	Description
1	1st Paper Feed Clutch	34	LCT 3rd Tray Lift Motor
2	2nd Paper Feed Clutch	35	Rear Fence Drive Motor
3	3rd Paper Feed Clutch	36	Tandem Tray Connect Solenoid
4	LCT 1st Paper Feed Clutch	37	Front Side Fence Solenoid
5	LCT 2nd Paper Feed Clutch	38	Rear Side Fence Solenoid
6	LCT 3rd Paper Feed Clutch	39	Left Tandem Lock Solenoid
7	1st Pick-up Solenoid	40	Relay Motor
8	2nd Pick-up Solenoid	41	Paper Feed Motor
9	3rd Pick-up Solenoid	42	LCT Motor
10	LCT 1st Pick-up Solenoid	43	Drum Motor
11	LCT 2nd Pick-up Solenoid	44	Fusing/Duplex Motor
12	LCT 3rd Pick-up Solenoid	45	Registration Motor
13	1st Separation Roller Solenoid	46	Oil Supply/Cleaning Web Motor
14	2nd Separation Roller Solenoid	47	Guide Plate Solenoid
15	3rd Separation Roller Solenoid	48	Inverter Gate Solenoid
16	LCT 1st Separation Roller Solenoid	49	Duplex Transport Clutch
17	LCT 2nd Separation Roller Solenoid	50	Duplex Feed Clutch
18	LCT 3rd Separation Roller Solenoid	51	Inverter Exit Roller Clutch
19	Lower Relay	52	Inverter Guide Plate Solenoid
20	LCT Transport Clutch	53	Duplex Inverter Gate Solenoid
21	1st Vertical Transport Clutch	54	Reverse Roller Solenoid
22	2nd Vertical Transport Clutch	55	Jogger Motor
23	3rd Vertical Transport Clutch	56	Toner Supply Roller Clutch
24	LCT 1st Grip Clutch	57	Development Motor
25	LCT 2nd Grip Clutch	58	Toner Supply Motor
26	LCT 3rd Grip Clutch	59	Upper Toner Bottle Motor
27	Upper Relay Clutch	60	Lower Toner Bottle Motor
28	LCT Relay	61	Toner Bank Motor
29	1st Tray Lift Motor	62	Upper Toner Cap Motor
30	2nd Tray Lift Motor	63	Lower Toner Cap Motor
31	3rd Tray Lift Motor	64	Toner Supply Coil Clutch
32	LCT 1st Tray Lift Motor	65	ID Sensor LED
33	LCT 2nd Tray Lift Motor	66	Transfer Belt Lift Solenoid

No.	Description	No.	Description
67	Quenching Lamp	78	Drum Cooling Fan (Low)
68	Charge Corona	79	Drum Cooling Fan (High)
69	Grid Plate	80	Paper Cooling Pipe Fan
70	Development Bias	81	Steam Removal Fan (Low)
71	Transfer Belt Bias	82	Steam Removal Fan (High)
72	Exposure Lamp	83	Development Unit Cooling Fan 1
73	Optics Cooling Fan	84	Development Unit Cooling Fan 2
74	Polygonal Mirror Motor Cooling Fan	85	Duplex Cooling Fan
75	SICU Cooling Fan	86	LDB Cooling Fan
76	Exhaust Fan - Low Speed	87	Not Used
77	Exhaust Fan - High Speed	88	Total Counter

ADF Output Check (SP6-008)

No.	Description
1	Feed-in Motor (High)
2	Feed-in Motor (Low)
3	Transport Motor (Forward)
4	Transport Motor (Reverse)
5	Feed-out Motor
6	Exit Gate Solenoid
7	Inverter Gate Solenoid
8	DF Indicators
9	Pick-up Motor (Forward)
10	Bottom Plate Motor
11	Feed-in Clutch

Finisher Output Check (SP6-118)

No.	Description
1	Upper Transport Motor
2	Shift Tray Exit Motor
3	Tray Junction Gate Solenoid
4	Shift Tray Lift Motor
5	Jogger Motor
6	Stapler Motor
7	Staple Hammer Motor
8	Punch Motor
9	Stapler Junction Gate Solenoid
10	Positioning Roller Solenoid
11	Stack Feed-out Motor
12	Shift Motor
13	Stapler Rotation Motor
14	Lower Transport Motor
15	Exit Guide Motor
16	Stack Plate Motor
17	Pre-stack Junction Gate Solenoid
18	Pre-stack Paper Stopper Solenoid
19	Stapler Return Solenoid

4.2.6 SYSTEM PARAMETER AND DATA LISTS (SMC LISTS)

1. Access the SP mode corresponding to the list that you wish to print.
   1) SP5-990-1: All system parameter list
   2) SP5-990-2: SP mode data list
   3) SP5-990-3: UP mode data list
   4) SP5-990-4: Machine status history data list
2. Touch the “Copy Mode” key to access the copy mode display.
3. Select the paper size and press the “Start” key to print the list.
4. After printing the list, exit the copy mode display by touching the “SP Mode” key.
5. Exit SP mode.

4.2.7 MEMORY ALL CLEAR (SP5-801)

NOTE: Memory All Clear mode resets all the SP mode settings stored in the NVRAMs on the SICU and the BCU to their default settings except for SP7-003-1 (Electrical total counter value).

There are three RAM clear modes which can be selected after entering SP5-801.

1) Clear all data in the NVRAMs on the SICU and BCU.
2) Clear the data in the NVRAM on the SICU.
3) Clear the data in the NVRAM on the BCU.

Among the settings that are reset are the correction data for process control and all the software counters.

Normally, this SP mode should not be used. This procedure is required only after replacing the NVRAM or when the copier malfunctions due to a damaged NVRAM.

1. Print out all SMC Data Lists (SP mode 5-990-1).
2. Access SP mode 5-801, and select 1, 2, or 3 for the required RAM clear mode.
3. Press "Start" on the display. At this time the beeper will sound.
4. A confirmation message will be displayed, then press “Yes” .
5. Turn the main power switch off and back on.
6. Do the printer and scanner registration and magnification adjustments (see Replacement and Adjustment – Copy Image Adjustments).
7. Referring to the SMC data lists, re-enter any values which had been changed from their factory settings.
8. Do SP3-001-2 (ID Sensor Initial Setting). If the SICU data was cleared, also do SP4-911-1 and 4-912-1 (HDD media tests). Note that the HDD media tests will delete copy server and stamp data on the disks.
9. Check the copy quality and the paper path, and do any necessary adjustments.

4.2.8 SOFTWARE RESET

The software can be reset when the machine hangs up. Do either of the following.

Either:

Turn the main power switch off and on.

Or:

Hold down the “#” key and “**.**” key at the same time for over 10 seconds.

4.2.9 SYSTEM SETTING AND COPY SETTING (UP MODE) RESET

System Setting Reset

The system settings in the UP mode can be reset to their defaults using the following procedure.

1. Make sure that the machine is in the copier standby mode.
2. Press the User Tools key.
3. Hold down the “#” key and touch the “System Setting” key.
4. A confirmation message will be displayed, then press “Yes”.

Copy Features Reset

The copy settings in the UP mode can be reset to their defaults using the following procedure.

1. Make sure that the machine is in the copier standby mode.
2. Press the User Tools key.
3. Hold down the “#” key and touch “Copy Features” key.
4. A confirmation message will be displayed, then press “Yes”.

4.3 PM COUNTER

Each PM part has a counter which counts up at the appropriate time. (For example, the counter for the hot roller counts up every copy, and the counter for a feed roller counts up when paper is fed from the corresponding tray.) These counters should be used as references for part replacement timing.

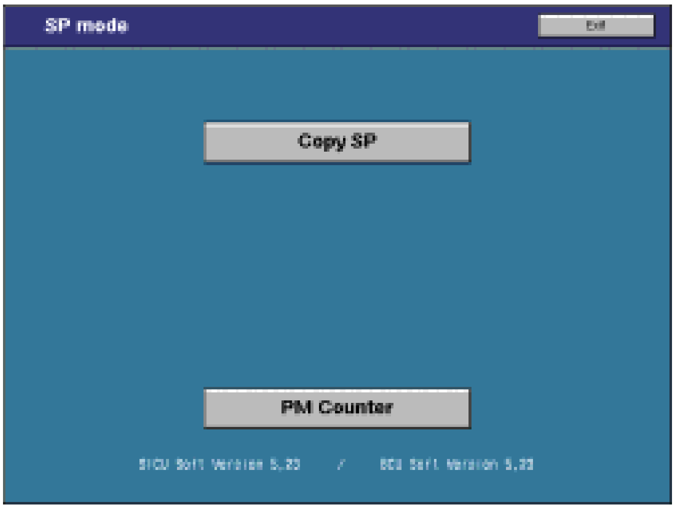
4.3.1 PM COUNTER ACCESS PROCEDURE

1) Press the following keys in sequence.

◇ → 1 → 0 → 7 → C

Hold the C key for more than 3 seconds

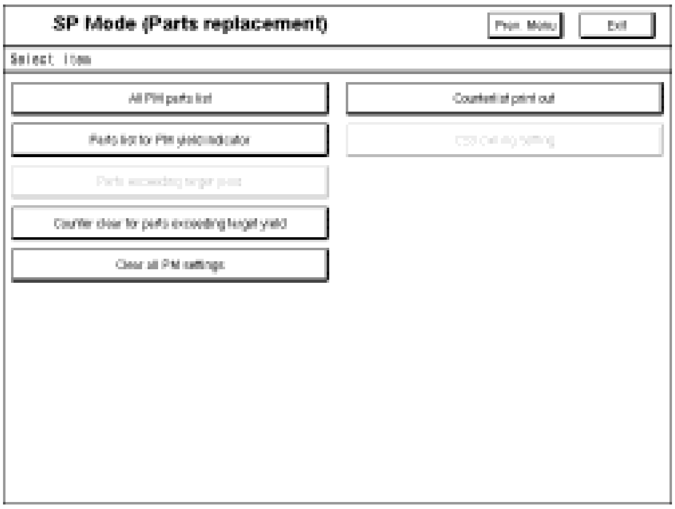
The SP mode menu is displayed.


SP mode
Exit
Copy SP
PM Counter

A294M001.PCX

2) Press [PM Counter] on the display.

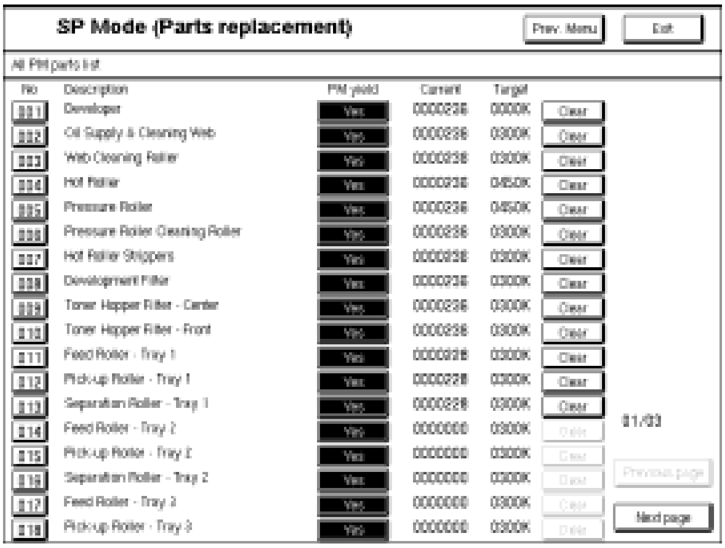
3) The following menu appears on the display.


SP Mode (Parts replacement)
Prev. Menu
Exit
Select item
All PM parts list
Counter list print out
Parts list for PM yield indicator
Parts exceeding target yield
Counter clear for parts exceeding target yield
Clear all PM settings

A294M013.PCX

1. All PM Parts List

Displays all the counters for PM parts.



No	Description	PM yield	Current	Target	
001	Developer	Yes	0000236	0000K	Clear
002	Oil Supply & Cleaning Web	Yes	0000236	0300K	Clear
003	Web Cleaning Roller	Yes	0000236	0300K	Clear
004	Hot Roller	Yes	0000236	0450K	Clear
005	Pressure Roller	Yes	0000236	0450K	Clear
006	Pressure Roller Cleaning Roller	Yes	0000236	0300K	Clear
007	Hot Roller Strippers	Yes	0000236	0300K	Clear
008	Development Filter	Yes	0000236	0300K	Clear
009	Toner Hopper Filter - Center	Yes	0000236	0300K	Clear
010	Toner Hopper Filter - Front	Yes	0000236	0300K	Clear
011	Feed Roller - Tray 1	Yes	0000228	0300K	Clear
012	Pick-up Roller - Tray 1	Yes	0000228	0300K	Clear
013	Separation Roller - Tray 1	Yes	0000228	0300K	Clear
014	Feed Roller - Tray 2	Yes	0000000	0300K	Clear
015	Pick-up Roller - Tray 2	Yes	0000000	0300K	Clear
016	Separation Roller - Tray 2	Yes	0000000	0300K	Clear
017	Feed Roller - Tray 3	Yes	0000000	0300K	Clear
018	Pick-up Roller - Tray 3	Yes	0000000	0300K	Clear

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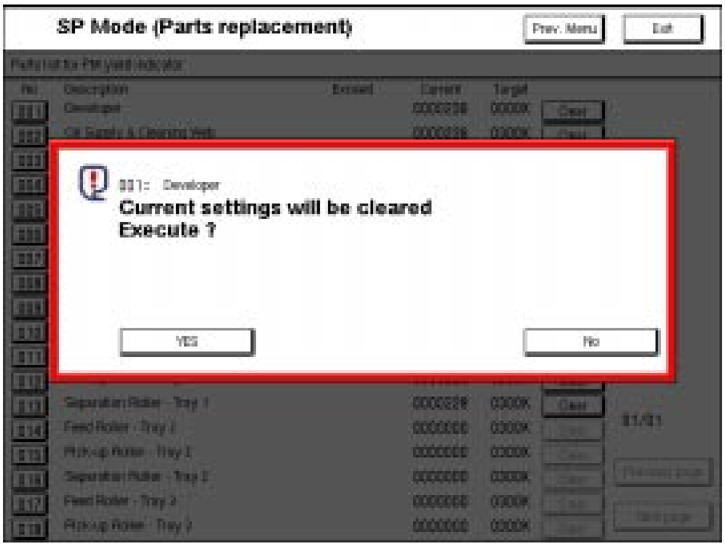
On this screen, the current counter and the target yield of each PM part can be checked.

Additionally, the PM yield indicator setting can be changed. To change the setting press [Yes/No] key in the "PM yield" column.

When "Parts list for PM yield" is selected in the parts replacement menu, only the parts with [Yes] in the "PM yield" are listed.

To clear a counter, press [Clear] on the display. The following appears.

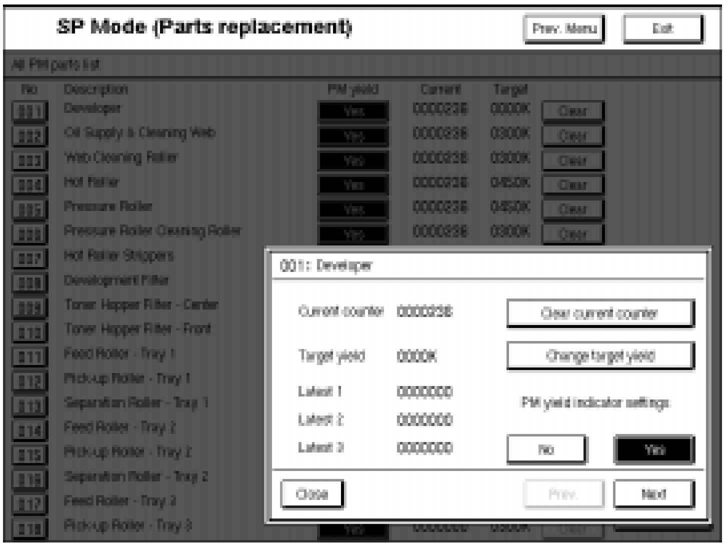


001: Developer
Current settings will be cleared
Execute ?

A294M016.PCX

Then press [Yes] to clear the counter.

If one of the keys in the “No” column is pressed, the following appears on the display.


SP Mode (Parts replacement)
Prev. Menu
Exit
All PM parts list
Clear
Yes
Clear current counter
Change target yield
PM yield indicator settings
No
Yes
Close
Prev.
Next

No	Description	PM yield	Current	Target
001	Developer	Yes	0000236	0000K
002	Oil Supply & Cleaning Web	Yes	0000238	0300K
003	Web Cleaning Roller	Yes	0000238	0300K
004	Hot Roller	Yes	0000238	0450K
005	Pressure Roller	Yes	0000236	0450K
006	Pressure Roller Cleaning Roller	Yes	0000238	0300K
007	Hot Roller Strippers			
008	Development Filter			
009	Toner Hopper Filter - Center			
010	Toner Hopper Filter - Front			
011	Feed Roller - Tray 1			
012	Pick-up Roller - Tray 1			
013	Separation Roller - Tray 1			
014	Feed Roller - Tray 2			
015	Pick-up Roller - Tray 2			
016	Separation Roller - Tray 2			
017	Feed Roller - Tray 3			
018	Pick-up Roller - Tray 3	Yes		

001: Developer

Current counter 0000238
Target yield 0000K
Latest 1 0000000
Latest 2 0000000
Latest 3 0000000

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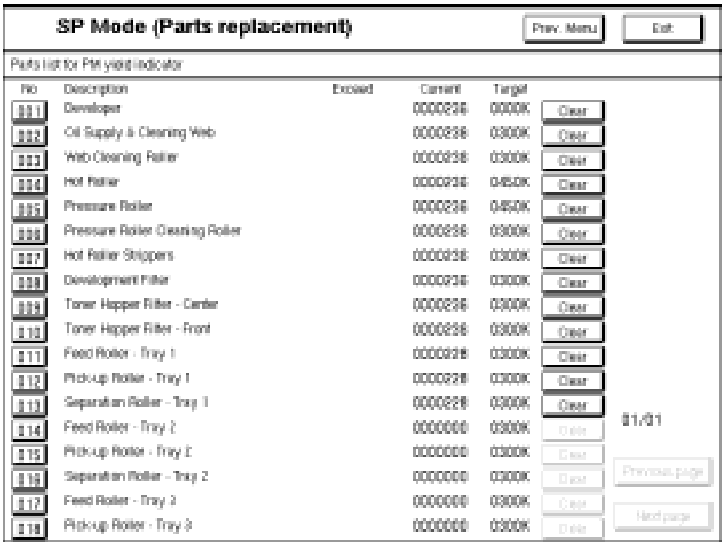
On this screen, the records of the last three part replacements are displayed. When ‘Clear current counter’ is pressed, the current counter is cleared, the current counter is overwritten to “Latest 1”, the Latest 1 counter is overwritten to “Latest 2”, and the Latest 2 counter is overwritten to “Latest 3”.

Additionally, the target yield can be changed on this screen. To change the target yield setting, do the following:

1) Press [Change target yield] on the screen.
2) Input the target yield using the ten-key pad.
3) Press the # key.

2. Parts List for PM Yield Indicator



SP Mode (Parts replacement)

Parts list for PM yield indicator

No	Description	Exceed	Current	Target	
001	Developer		0000236	0000K	Clear
002	Oil Supply & Cleaning Web		0000236	0300K	Clear
003	Web Cleaning Roller		0000236	0300K	Clear
004	Hot Roller		0000236	0450K	Clear
005	Pressure Roller		0000236	0450K	Clear
006	Pressure Roller Cleaning Roller		0000236	0300K	Clear
007	Hot Roller Strippers		0000236	0300K	Clear
008	Development Filter		0000236	0300K	Clear
009	Toner Hopper Filter - Center		0000236	0300K	Clear
010	Toner Hopper Filter - Front		0000236	0300K	Clear
011	Feed Roller - Tray 1		0000228	0300K	Clear
012	Pick-up Roller - Tray 1		0000228	0300K	Clear
013	Separation Roller - Tray 1		0000228	0300K	Clear
014	Feed Roller - Tray 2		0000000	0300K	Clear
015	Pick-up Roller - Tray 2		0000000	0300K	Clear
016	Separation Roller - Tray 2		0000000	0300K	Clear
017	Feed Roller - Tray 3		0000000	0300K	Clear
018	Pick-up Roller - Tray 3		0000000	0300K	Clear

01/01

A294M015.PCX

On this screen, only the parts selected in the “All PM parts list” screen are displayed. Normally, the PM parts counters should be checked on this screen.

If the current counter exceeds the target yield, there is a * mark in the “Exceed” column.

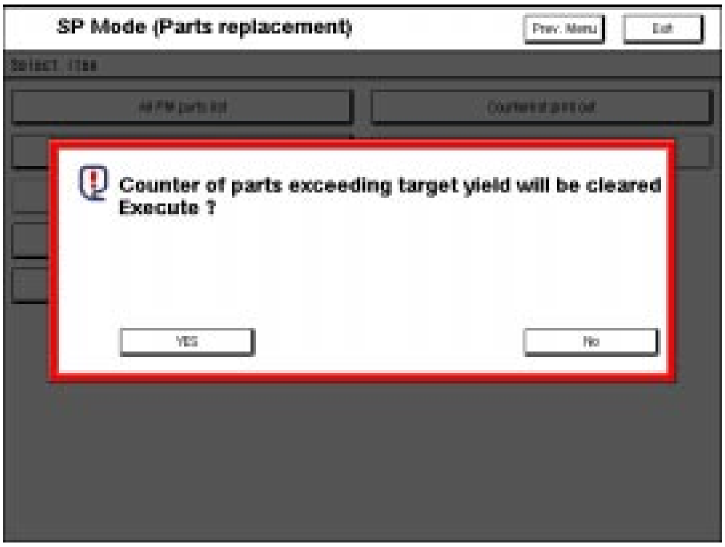
Each counter can also be cleared on this screen. To clear all counters on this screen at once, see ‘Counter Clear for Parts Exceeding Target Yield’ on the next page.

3. Parts Exceeding Target Yield

Only the parts whose counters are exceeding the target yield are displayed. If none of the PM counters is exceeding the target yield, this item cannot be selected from the parts replacement menu.

4. Counter Clear for Parts Exceeding Target Yield

Clears all the counters which are exceeding the target yield. When this item is selected, the following appears on the display.


SP Mode (Parts replacement)
Prev. Menu
Exit
YES
No

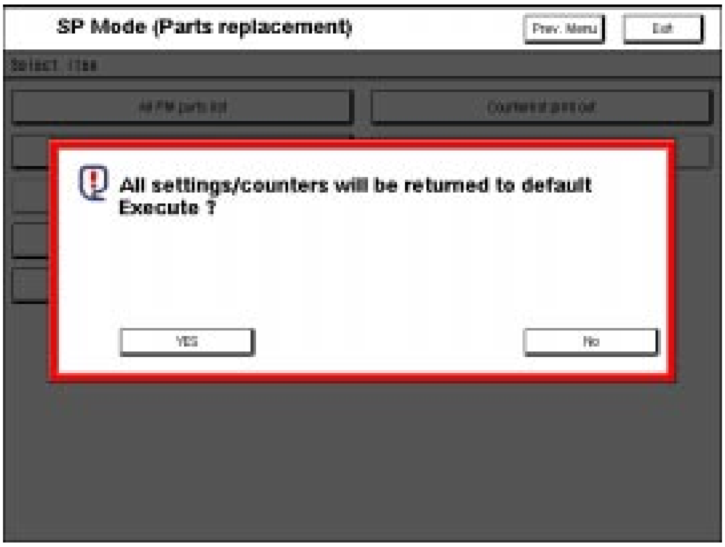
Counter of parts exceeding target yield will be cleared
Execute ?

A294M018.PCX

Press [Yes] to clear the counters.

5. Clear All PM Settings

Clears all the PM counters and returns all the settings (PM parts list and target yield) to the defaults. When this item is selected, the following appears.


SP Mode (Parts replacement)
Prev. Menu
Exit
YES
No

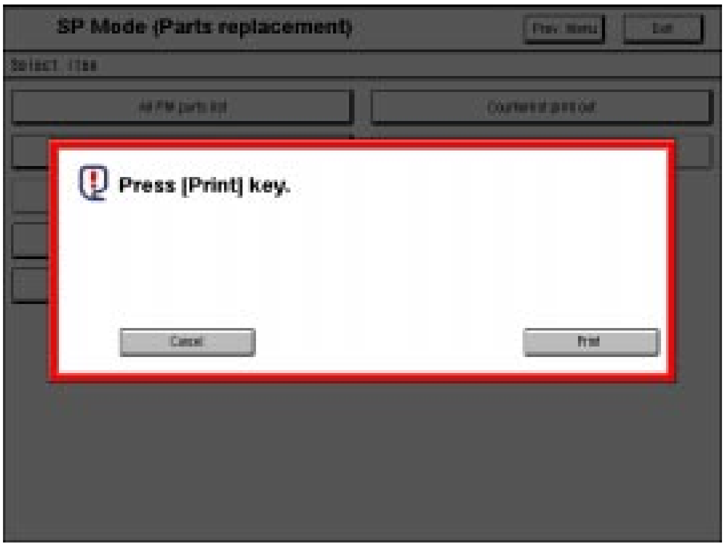
All settings/counters will be returned to default
Execute ?

A294M019.PCX

Press [Yes] to clear the settings.

6. Counter List Print Out

Prints a list of all the PM part counters. When this item is selected, the following appears on the display.


SP Mode (Parts replacement)
Prev. Menu
Exit
Select Item
Cancel
Print

Press [Print] key.

A294M010.PCX

Press [Print] to print out the counter list.

7. CSS Calling Setting (RSS Function)

This function is for Japanese machines only.

4.4 PROGRAM DOWNLOAD

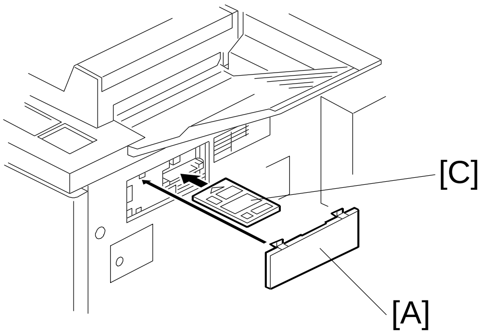
The flash memory card holds two programs, one is for the SICU and the other is for the BCU. Both programs can be downloaded from the slot in the SICU (the program for the BCU is transferred from the SICU).

There is also a function to download the program from the SICU to a flash memory card. However, the BCU program cannot be downloaded to a flash memory card.

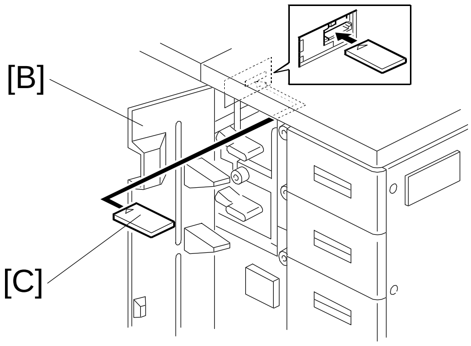
NOTE: The procedure for how to write the source software from a flash memory card writer to a flash memory card is described in the SwapBox FTL manual.

Download to the SICU and BCU

NOTE: The program for the SICU and the program for the BCU can be downloaded separately. However, both programs should be updated at the same time to prevent mismatching of the programs.



A294M900.WMF



A294M025.WMF

1. Turn off the main power switch.
2. Remove the flash memory card cover [A]. If the optional LCT is installed, open the left cover [B] of the LCT.
3. Plug the flash memory card [C] into the card slot in the SICU.
   NOTE: Make sure that the surface printed “A” faces upwards.
4. Turn on the main power switch.
5. Touch “Install” to download the SICU software. The machine erases the current software, then writes the new software to the SICU.
6. Touch “Install” to download the BCU software. The machine erases the current software, then writes the new software to the BCU.

If downloading from the flash card to the SICU failed, an error message appears on the display. At this time, touch the “OK” key to re-try the download.

Download to the BCU

NOTE: This procedure is required only when download from the SICU to the BCU failed for some reason.

1. Turn off the main power switch.
2. Remove the upper rear cover.
3. Plug the flash memory card into the card slot of the BCU.
   NOTE: Set the card so that the surface printed “A” is visible.
4. Turn on the main power switch.
5. Touch “Install” on the display to download the BCU software. The machine erases the current software, then writes the new software to the BCU.
6. Turn the main switch off, then remove the card from the BCU.

Download from SICU to Flash Memory Card

1. Turn off the main switch.
2. Plug a blank flash memory card into the card slot of the SICU.
   NOTE: Make sure that the surface printed “A” faces upwards.
3. Turn on the main switch.
4. Select [4. Program Upload (SICU)].
5. Press [EXEC] on the display.
6. After download is completed, turn the main switch off and remove the flash memory card.

4.5 NVRAM DATA DOWNLOAD

The NVRAM data in the SICU and BCU can be downloaded to a flash memory card. The downloaded data can be copied back to the machine.

This is useful to save the settings before a RAM clear is done. The procedure is as follows:

NOTE: It is recommended that the current settings are printed out before starting the following procedure, in case the download fails.

Download from the SICU and BCU NVRAMs to the Flash Memory Card

1. Turn the main switch off.
2. Plug a blank flash memory card into the card slot of the SICU.
   NOTE: Make sure that the surface printed “A” faces upwards.
3. Turn on the main switch.
   NOTE: If the flash memory card contains SICU and BCU firmware, the firmware download screen will now appear. Press [EXIT] on this screen to go on to step 4. (Note that the firmware on the card will be erased by the following steps.)
4. Select [3. NVRAM Upload]
5. Press [EXEC] on the display.
6. After the download is completed, turn the main switch off and remove the flash memory card.

Download from the Flash Memory Card to the NVRAMs

NOTE: The download can be done separately for the BCU or SICU, or for user tool settings only.

1. Turn the main switch off.
2. Plug the flash memory card which contains the NVRAM data into the card slot of the SICU.
   NOTE: Make sure that the surface printed “A” faces upwards.
3. Turn on the main switch.
4. Select [2. NVRAM Download]
5. Select the required menu item from the following.
   [1. All NVRAM Download]: (Downloads all data in the NVRAMs to the SICU and BCU.)
   [2. Mode NVRAM Down load]: (Downloads only UP mode settings)
   [3. SICU NVRAM Down load]: (Downloads the data to the NVRAM on the SICU)
   [4. BCU NVRAM Down load]: (Downloads the data to the NVRAM on the BCU)
6. Press [EXEC] on the display.
7. After the download is completed, turn the main switch off and remove the flash memory card.

4.6 LANGUAGE DATA DOWNLOAD

This machine can use up to two languages for the operation panel display. The stored languages can be replaced with other languages.

1. Turn the main switch off.
2. Connect the flash memory card which contains the language data to the SICU flash card slot.
3. Turn the main switch on.
4. Select the language to be replaced (1st or 2nd), and press [Select] on the screen.
5. Select the language to be installed on the screen. (If the 2nd language is unnecessary, it can be deleted by selecting [0. Delete].)
6. If necessary, repeat steps 4 and 5 to replace another language (1st or 2nd).
7. Press [Install] on the screen, or press # to start overwriting the language(s). The machine erases the current language(s) and writes the new language(s).
8. When the downloading is completed, turn the main switch off and remove the flash memory card.

4.7 STAMP DATA DOWNLOAD

Both hard disks contain the stamp data used with the stamp feature. However, if a disk is replaced, the replacement disk does not have this stamp data. The data must be reinstalled from an IC card which contains the stamp data.

1. Turn the main switch off.
2. Connect the flash memory card which contains the stamp data to the SICU flash card slot.
   NOTE: Make sure that the surface printed “A” faces upwards.
3. Turn the main switch on.
   NOTE: If the flash memory card contains SICU and BCU firmware, the firmware download screen will now appear. Press [EXIT] on this screen to go on to step 4. (Note that the firmware on the card will be erased by the following steps.)
4. Select [1. Stamp Data Download].
5. Press [EXEC] on the display.
6. After the download is completed, turn the main switch off and remove the flash memory card.

4.8 USER PROGRAM MODE

4.8.1 HOW TO ENTER AND EXIT UP MODE

The user program (UP) mode is accessed by users, and by sales and service staff. UP mode is used to input the copier’s default settings.

Press the User Tools/Counter button, then select the UP mode program. After finishing the UP mode program, touch “Exit” key to exit UP mode.

4.8.2 UP MODE TABLE

NOTE: Each UP mode is explained in the operating instructions.

System Settings

General Features	Function Priority
	Panel tone
	Ready Panel Tone
	Copy Count Display
	System Reset
	Panel Off Timer
	Auto Tray Switching
	Copier/Document Sever Output Tray
	Status Indicator
	Language Priority
	Screen Color Setting
	Paper Tray Priority
	Original: F/F4 Size Setting
Timer Setting	Date
	Time
	Weekly Timer: Monday
	Weekly Timer: Tuesday
	Weekly Timer: Wednesday
	Weekly Timer: Thursday
	Weekly Timer: Friday
	Weekly Timer: Saturday
	Weekly Timer: Sunday
	Key Operator Code for Off Setting

Paper Size Setting	Tray 1: Paper Type
	Tray 2: Paper Type
	Tray 3: Paper Type
	Tray 4: Paper Type
	Tray 5: Paper Type
	Tray 6: Paper Type
	Slip Sheet 1
	Slip Sheet 2
	Slip Sheet 3
	Cover Sheet
	Separation sheet
Key Operator Tools	User Codes: Copier/Document Server
	Key Counter: Copier Access
	Key Operator Access
	User Code Display
	AOF (Keep it on)
	Memory Allocation
	Display/Print Counter

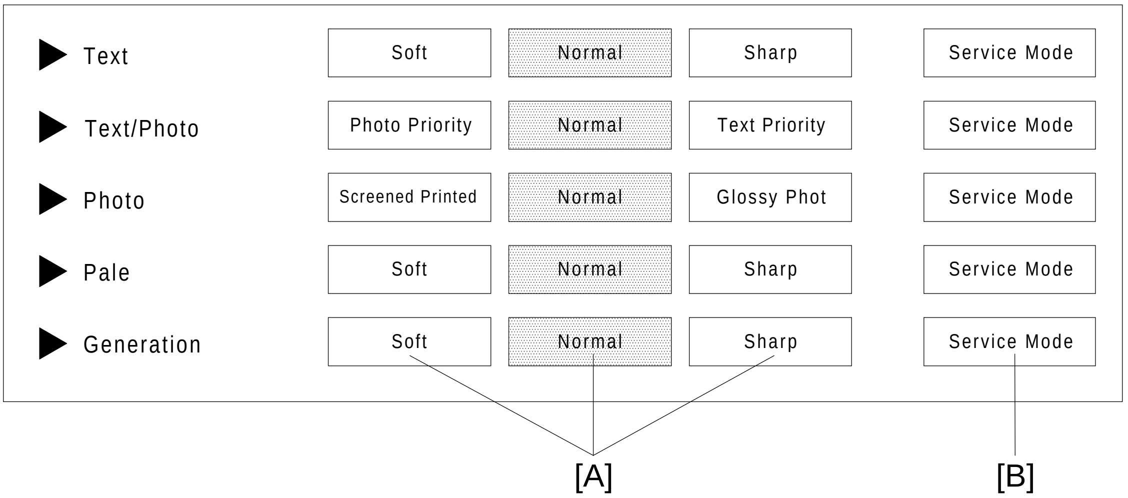
Copy Features Table

Tab	Category	Item
General Features	General Features	Auto Paper Select Priority
		Auto Density Select Priority
		Original Mode Priority
		Paper Tray Priority
		Duplex Mode Priority
		Original Orientation in Duplex Mode
		Copy Orientation in Duplex Mode
		Initial Mode Set
		Maximum Copy Quantity
		Copy Reset Timer
		Job List Screen Timeout
	Set Ratio	Preset Reduce Enlarge Setting
		Ratio Priority
		Shortcut R/E
		Create Margin ration Setting
	Image Quality	Text
		Text/Photo
		Photo
		Pale
		Generation
	Display/Panel Tone	Original Mode Display
		Paper Tray Display
		Other Tab Priority Function Setting
		Image Adjustment Priority
		Stamp Priority
		Staple Format Setting
		Original Tone
		Job End Call
	Adjust Image	Copy Back Cover
		Front Margin: Left/Right
		Back Margin: Left/Right
		Front Margin: Top/Bottom
		Back Margin: Top/Bottom
		1 → Duplex Auto Margin Adjust
		Border Erase Width
		Combine Orig. Shadow Erase
		Center Erase Width
		Repeat Separation Line
		Double Copies Separation Line
		Combine Separation Line
		Copy Orientation in Combine Mode
		Booklet/Magazine Original Orientation
Stamp Setting	Background No. Setting	Background Numbering Size
		Background Numbering Density

Tab	Category	Item
Stamp Setting	Background No. Setting	Background Numbering: Positive Negative
	Preset Stamp Setting	Language Setting
		Stamp Type Priority
		Stamp Layout
		Position Setting
		Size Setting
		Density
		Print Page
		Preset Stamp: Positive/Negative
	User Stamp Setting	Register/Delete Stamp
		Position: Stamp 1-5
	Data Stamp Setting	Type Setting
		Font Setting
		Position Setting
		Size Setting
		Date Stamp: Positive/Negative
	Page Number Setting	Page Numbering type Priority
		Font Setting
		Size setting
		Duplex Back Page Number
		Page Numbering in Combine Mode
		Copy On Slip In Designate Mode
		Page Numbering: Positive/Negative
		Position: P1, P2 Position: 1/5, 2/5 Position: -1-, -2 Position: P.1, P.2 Position: 1, 2 Position: 1-1, 1-2,
Input Output	SADF Auto Reset	
	Rise ADF Orig. Table When	
	Deliver Copies Face Up/Down From Platen	
	Auto Sort Mode	
	Memory Full Auto Scan Restart	
	Shift Print In Sort/Stack Mode	
	Separation Sheet	
Document server	Auto File Delete Period	
	List Display Priority	
	Delete All Stored Files	
Key Operator Tools Count Manager	Print Counter List	
	Reset Counters	
	Reset All	
	Register	
	Change	
	Delete User Code	
	Delete All User Codes	

4.8.3 IMAGE QUALITY SETTING BY UP MODE

‘Original Mode Level’ in the ‘General Features’ UP menu is related to the ‘MTF Filter Settings’ SP mode.


Text
Soft
Normal
Sharp
Service Mode
Text/Photo
Photo Priority
Normal
Text Priority
Service Mode
Photo
Screened Printed
Normal
Glossy Phot
Service Mode
Pale
Soft
Normal
Sharp
Service Mode
Generation
Soft
Normal
Sharp
Service Mode
[A]
[B]

A294M511.WMF

If a setting from the above three columns [A] is selected, the MTF level (coefficient) and MTF strength (SP4-903-20 to 58) are fixed. Any changes to the SP mode settings are not reflected on the copy. To use the settings specified by SP mode, the user must select “Service Mode” [B].

The detailed relationship between the different original modes, the UP modes, and the SP modes are as follows.

Text Mode

Different gamma correction settings are used for “Sharp”, “Normal” or “Soft” mode. So, when adjusting the “Service Mode” setting, first select a gamma correction setting for the basic image setting using SP4-903-84.

1. The following tables should be used when 1 (Normal) or 2 (Sharp) is selected in SP4-903-84.

Magnification Ratio: 25 ~ 49%

MTF Filter Strength	Strong				Weak
UP mode		Sharp	Normal		
Pre-filter Type – Text SP4-903-010	1	1	1	1	1
Filter Level – Text Main Scan Direction SP4-903-020	13	13	13	13	7
Filter Strength – Text Main Scan Direction SP4-903-022	3	2	1	0	0

Magnification Ratio: 50 ~ 154%

MTF Filter Strength	Strong				Weak
UP mode		Sharp	Normal		
Pre-filter Type – Text SP4-903-011	0	0	0	0	2
Filter Level – Text Main Scan Direction SP4-903-024	13	13	13	13	13
Filter Strength – Text Main Scan Direction SP4-903-026	3	2	1	0	0

Magnification Ratio: 155 ~ 256%

MTF Filter Strength	Strong				Weak
UP mode		Sharp	Normal		
Filter Level – Text SP4-903-028	13	13	13	9	7
Filter Strength – Text Main Scan Direction SP4-903-030	2	1	0	0	0

Magnification Ratio: 257 ~ 400%

MTF Filter Strength	Strong				Weak
UP mode		Sharp	Normal		
Filter Level – Text SP4-903-032	13	13	13	9	7
Filter Strength – Text Main Scan Direction SP4-903-034	2	1	0	0	0

2. The following tables should be used when 0 (Soft) is selected in SP4-903-84.

Magnification Ratio: 25 ~ 49%

MTF Filter Strength	Strong				Weak
UP mode			Soft		
Pre-filter Type – Text SP4-903-010	1	1	1	1	1
Filter Level – Text Main Scan Direction SP4-903-020	3	3	3	3	3
Filter Level – Text Sub Scan Direction SP4-903-021	6	6	6	6	6
Filter Strength – Text Main Scan Direction SP4-903-022	4	3	2	1	1
Filter Strength – Text Sub Scan Direction SP4-903-023	2	2	1	1	0

Magnification Ratio: 50 ~ 154%

MTF Filter Strength	Strong				Weak
UP mode			Soft		
Pre-filter Type – Text SP4-903-011	0	0	0	0	0
Filter Level – Text Main Scan Direction SP4-903-024	3	3	3	3	3
Filter Level – Text Sub Scan Direction SP4-903-025	6	6	6	6	6
Filter Strength – Text Main Scan Direction SP4-903-026	4	3	2	1	1
Filter Strength – Text Sub Scan Direction SP4-903-027	2	2	1	1	0

Magnification Ratio: 155 ~ 256%

MTF Filter Strength	Strong				Weak
UP mode			Soft		
Filter Level – Text Main Scan Direction SP4-903-028	0	0	0	0	0
Filter Level – Text Sub Scan Direction SP4-903-029	2	2	2	2	2
Filter Strength – Text Main Scan Direction SP4-903-030	5	4	2	2	1
Filter Strength – Text Sub Scan Direction SP4-903-031	5	4	4	2	1

Magnification Ratio: 257 ~ 400%

MTF Filter Strength	Strong				Weak
UP mode			Soft		
Filter Level – Text Main Scan Direction SP4-903-032	0	0	0	0	0
Filter Level – Text Sub Scan Direction SP4-903-033	2	2	2	2	2
Filter Strength – Text Main Scan Direction SP4-903-034	5	4	2	2	1
Filter Strength – Text Sub Scan Direction SP4-903-035	5	4	4	2	1

Text/Photo Mode

Initially, the same filter settings are used for Sharp, Normal, and Soft in Text/Photo mode. The difference of each image mode is due to the gamma correction setting. The following filter settings should be changed after selecting the gamma correction setting in SP4-903-85.

Magnification Ratio: 25 ~ 49%

MTF Filter Strength	Strong				Weak
UP mode			Photo Priority Normal Text Priority		
Pre-filter Type – Text/Photo SP4-903-013	1	1	1	1	1
Filter Level – Text/Photo Main Scan Direction SP4-903-039	13	13	13	9	7
Filter Strength – Text/Photo Main Scan Direction SP4-903-041	2	1	0	0	0

Magnification Ratio: 50 ~ 154%

MTF Filter Strength	Strong				Weak
UP mode			Photo Priority Normal Text Priority		
Pre-filter Type – Text/Photo SP4-903-014	0	0	0	2	1
Filter Level – Text/Photo Main Scan Direction SP4-903-43	13	13	13	13	13
Filter Strength – Text/Photo Main Scan Direction SP4-903-045	2	1	0	0	0

Magnification Ratio: 155 ~ 256%

MTF Filter Strength	Strong				Weak
UP mode			Photo Priority Normal Text Priority		
Filter Level – Text/Photo Main Scan Direction SP4-903-047	13	13	13	9	7
Filter Strength – Text/Photo Main Scan Direction SP4-903-049	2	1	0	0	0

Magnification Ratio: 257 ~ 400%

MTF Filter Strength	Strong				Weak
UP mode			Photo Priority Normal Text Priority		
Filter Level – Text/Photo Main Scan Direction SP4-903-051	13	13	13	9	7
Filter Strength – Text/Photo Main Scan Direction SP4-903-053	2	1	0	0	0

Photo Mode

Normally the smoothing filter is used in this mode, whether the user selects “Glossy Photo”, “Normal”, or “Screen Printed”.

When a stronger setting is selected, the reproduction of graduations is improved. However, the image tends to go out of focus.

MTF Filter Strength	Strong								Weak
UP mode		Screened Printed			Normal			Glossy Photo	
Pre-filter Type – Photo Mode SP4-903-012		1	2	1	1	1	7	7	10
Smoothing Filter – Photo Mode SP4-903-037		4	4	2	1	0	1	0	0

If the user selects “Service Mode” to use another smoothing filter setting, SP4-903-009 (Filter Type Selection in Photo Mode) should be “1: Smoothing”.

If the user selects “Service Mode” to use an MTF filter setting for photo mode, SP4-903-009 (Filter Type Selection in Photo Mode) should be “0: MTF”.

The following table should be used to change the MTF filter strength for Photo mode.

MTF Filter Strength	Strong				Weak
UP mode					
Pre-filter Type – Photo Mode SP4-903-012	10	10	7	2	1
MTF Filter – Photo Mode SP4-903-36	13	13	13	13	13
MTF Filter Strength – Photo Mode SP4-903-38	2	1	1	1	0

Pale Mode

MTF Filter Strength	Strong						Weak
UP mode		Sharp		Normal		Soft	
Pre-filter Type – Pale Mode SP4-903-015	1	1	1	1	1	1	1
Filter Level – Pale Mode SP4-903-055	3	3	3	3	3	3	1
Filter Strength – Pale Mode SP4-903-056	6	5	4	3	2	1	0

Generation Mode

MTF Filter Strength	Strong						Weak
UP mode		Sharp		Normal		Soft	
Pre-filter Type – Generation Mode SP4-903-016	1	1	1	1	1	1	1
Filter Level – Generation Mode SP4-903-057	13	13	10	13	10	13	7
Filter Strength – Generation Mode SP4-903-058	3	2	2	1	1	0	0

4.8.4 LEDS

SICU

Number	Monitored Signal
LED101	Blinking: Normal Stays on or off: CPU defective
LED102	Off: Normal
LED103	Off: Normal
LED104	Blinking: Normal

BCU

Number	Monitored Signal
LED601 (Green)	Off: Normal Stays on: While downloading the flash memory card.
LED602 (Red)	Blinking: Normal Stays on: While downloading the flash memory card.

I/O Board

Number	Monitored Signal
LED1	Turns on when motor/solenoid drive signal is sent from the BCU to IOB (Normally on).

PSU

Number	Monitored Signal
LED1	On: Normal
LED2	On: Stand-by Off: Energy saver mode
LED3	On: Stand-by Off: Energy saver mode

ADF Main Board

❍: ON ✰: Blinking

LED100	LED101	LED102	
❍	—	—	Entrance Sensor Jam
—	❍	—	Registration Sensor Jam
❍	❍	—	Exit Sensor Jam
—	—	❍	Inverter Sensor Jam
❍	—	❍	Jammed paper not removed: Between entrance sensor + registration sensor
❍	❍	❍	Jammed paper not removed: On the exposure glass
✰	—	—	Feed-in Motor Abnormal
—	✰	—	Transport Motor Abnormal
—	—	✰	Feed-out Motor Abnormal
✰	✰	—	Pick-up Motor Abnormal
—	✰	✰	Bottom Plate Motor Abnormal
✰	✰	✰	DF Position (Open)
✰	—	✰	APS Sensor ON
✰	—	—	Normal

4.9 TEST POINTS/DIP SWITCHES/LEDS

4.9.1 DIP SWITCHES

SICU

Paper size type default (see SP 5-131)

SW101		Destination
1	**2**	
0	0	Japanese version
1	0	North America version
0	1	Europe version
1	1	Chinese version

ADF Main Board

DPS100				Description
4	**3**	**2**	**1**	
0	0	0	0	Normal operating mode
0	0	0	1	Motor Test: Transport motor – Forward
0	0	1	0	Motor Test: Transport motor – Reverse
0	0	1	1	Motor Speed Adjustment (Automatic)
0	1	0	0	Original stop position adjustment – Single-sided original mode (No original skew correction)
0	1	0	1	Original stop position adjustment – Double sided original mode
1	0	0	0	Free Run: Single-sided original mode with skew correction
1	0	1	0	Free Run: Single-sided original mode without skew correction
0	1	1	0	Free Run: Double-sided original mode
Others				Do not select

“SADF” LED turns on when one of DIP switch turns on.

MCU: All the dip switches should be OFF. Do not change the settings.

4.9.2 TEST POINTS

ADF Main Board

Number	Label	Monitored Signal
TP100	TXD	TXD to the copier
TP101	RXD	RXD from the copier
TP102	GND	Ground
TP103	12 V	+12 V
TP104	5 V	+5 V

BCU

Number	Monitored Signal
TP647	Ground
TP679	Ground

4.9.3 FUSES

ADF Main Board

Number	Description
FU100	Protects the 38 V line
FU101	Protects the 24 V line

PSU

Number	Description
FU401	Protect the ac input line.

I/F Board (Option)

Number	Description
FJ101 (T1A250U)	Protects the 5 V power line. If this fuse is broken, all the related options are not recognized.

4.9.4 VARIABLE RESISTORS

ADF Main Board

Number	Function
VR100	Adjusts the original stop position for the single-sided original at no skew correction mode.
VR101	Adjusts the original stop position for the double-sided original.

Charge/Bias/Grid Power Pack

Number	Function
VRC	For the charge corona PWM. This VR is secured by paintlock. Do not change the setting in the field.
VRG	For the grid PWM. This VR is secured by paintlock. Do not change the setting in the field.

4.10 SPECIAL TOOLS AND LUBRICANTS

4.10.1 SPECIAL TOOLS

Part Number	Description	Q'ty
A2309352	Flash Memory Card - 4MB	1
A2309351	Case - Flash Memory Card	1
A0069104	Scanner Positioning Pin (4 pcs/set)	1
54209516	Test Chart - OS-A3 (10 pcs/Set)	1
A0299387	Digital Multimeter – FLUKE 87	1

4.10.2 LUBRICANTS

Part Number	Description	Q'ty
A0289300	Grease Barrierta JFE 5 5/2	1
52039502	Silicone Grease G-501	1
G0049668	Grease: KS660: SHIN ETSU	1

5. PREVENTIVE MAINTENANCE SCHEDULE

5.1 PM PARTS

NOTE: The amount mentioned as the PM interval indicates the number of prints, unless stated otherwise.

Symbol key: **R,** r: Replace on a PM part counter basis (refer to Service Tables – PM Counter)
- **R**: The counter counts up every copy, in the same way as the copy counter
- r: The counter only counts up if that part was used for the copy

I: Inspect, and clean and/or lubricate
i: Inspect, and clean and/or lubricate only if necessary

Description	Activity Type	Interval	Note/Remarks
OPTICS			
Exposure Glass	i	300 k	
1st ~ 3rd Mirrors	i	300 k	Optical cloth
APS Sensor	i	300 k	Dry cloth
Scanner Rail	i	300 k	Dry cloth
Scanner Filter	**I**	600 k	Blower brush
Toner Shield Glass	**I**	300 k	Optical cloth
LD Filter	**I**	300 k	Blower brush
DEVELOPMENT UNIT			
Side Seal	**I**	300 k	Blower brush or dry cloth
Development Unit	i	300 k	Blower brush or dry cloth
Entrance Seal	**I**	300 k	Blower brush or dry cloth
Toner Hopper (Outside)	i	300 k	Blower brush or dry cloth
Gears (All Gears)	i	300 k	Blower brush
Development Filter	r	320 k	
Toner Filter (Center)	r	400 k	
Toner Filter (Front)	r	400 k	
Developer	r	390 k	TD sensor initial setting (SP2-801)
AROUND THE DRUM			
Side Seal	i	300 k	Blower brush or dry cloth
Ground Plate/Screw	i	300 k	Electrical connection check Alcohol or water
Drum Filter	**I**	380 k	Blower brush
Cleaning Brush Seal	i	300 k	Blower brush or dry cloth
Cleaning Entrance Seal	**I**	300 k	Blower brush or dry cloth
ID Sensor	**I**	300 k	Blower brush or dry cloth
Transfer Unit Entrance Stay	**I**	300 k	Blower brush or dry cloth
Corona Wire Casing	**I**	300 k	Damp cloth

Description	Activity Type	Interval	Note/Remarks
Drum Potential Sensor	**I**	300 k	Blower brush
Quenching Lamp	**I**	300 k	Blower brush or dry cloth
Cleaning Brush	**R**	300 k	
Toner Filter	**R**	300 k	
Transfer Belt Cleaning Blade	**R**	450 k	
Cleaning Blade	**R**	300 k	
Grid Plate	r	380 k	
Charge Corona Wire	r	380 k	
Wire Cleaner	r	380 k	
Pick-off Pawls	**R**	300 k	
Transfer Belt	**R**	450 k	
Transfer Belt Bias Brush	**I**	450 k	Blower brush
Rear Casing Guide	**I**	300 k	Dry cloth
Exit Bias Plate	**I**	300 k	Blower brush
Belt Drive Roller	**I**	450 k	Alcohol
Belt Roller	**I**	450 k	Alcohol
Cleaning Bias Roller	**I**	450 k	Alcohol
FUSING UNIT			
Pressure Roller Cleaning Roller Bearings	i	600 k	Inspect only
Pressure Roller Cleaning Roller	**R**	600 k	
Fusing Entrance Guide	**I**	300 k	Clean with water or alcohol
Oil Supply & Cleaning Web	r	300 k	
Hot Roller	r	600 k	
Hot Roller Stripper	r	600 k	
Pressure Roller Stripper		600 k	Clean with a dry cloth
Fusing Exit Roller		600 k	Clean with water or alcohol
Pressure Roller	r	700 k	
Pressure Roller Cleaning Roller Cleaner	r	600 k	
Bearings	i	300 k	Inspect only
Bushings	i	700 k	Inspect only
PAPER FEED			
Relay Roller	**I**	300 k	Damp cloth
Paper Feed Guide Plate	i	300 k	Damp cloth
Registration Rollers	**I**	300 k	Damp cloth
Registration Sensor	**I**	300 k	Blower brush
Relay Sensor	**I**	300 k	Blower brush
Paper Dust Remover	**I**	300 k	Damp cloth
Paper Feed Sensor	**I**	300 k	Blower brush
Paper Feed Rollers	r	300 k	

Description	Activity Type	Interval	Note/Remarks
DUPLEX			
Feed and Transport Rollers	**I**	300 k	Damp cloth
Reverse and Inverter Rollers	**I**	300 k	Damp cloth
Entrance Sensor	**I**	300 k	Blower brush
Entrance Anti-static Brush	i	300 k	Blower brush

Description	Activity Type	Interval	Note/Remarks
ADF			
Transport Belt	r	80 k	Belt cleaner
Feed Belt	r	80 k	Belt cleaner
Separation Roller	r	80 k	Dry or damp cloth
Pick-up Roller	r	80 k	Dry or damp cloth
Sensors	i	80 k	Blower brush
Drive Gears	i	80 k	Grease G501

Description	Activity Type	Interval	Note/Remarks
LCT			
Paper Feed Roller	r	300 k	
Pick-up Roller	r	300 k	
Separation Roller	r	300 k	
Bottom Plate Pad	i	300 k	Dry or damp cloth

Description	Activity Type	Interval	Note/Remarks
3,000-SHEET FINISHER			
Rollers	i	300 k	Clean with water or alcohol.
Brush Roller	i	300 k	Inspect only. Replace if necessary.
Discharge Brush	i	300 k	Clean with a dry cloth.
Sensors	i	300 k	Blower brush
Jogger Fences	i	300 k	Inspect only. Replace if necessary.
Punch Waste Hopper	i	300 k	Empty the hopper.

NOTE: PM parts should be replaced on a PM counter basis. The PM counter corresponding to the replaced part should be cleared (refer to Service Tables – PM Counter).

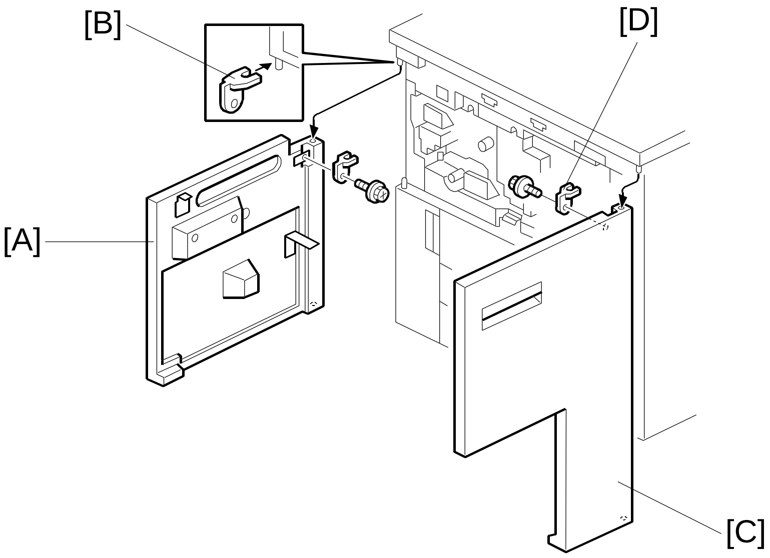
6. REPLACEMENT AND ADJUSTMENT

⚠CAUTION

Turn off the main power switch and unplug the machine before attempting any of the procedures in this section.

6.1 EXTERIOR

6.1.1 FRONT



A294R945.WMF

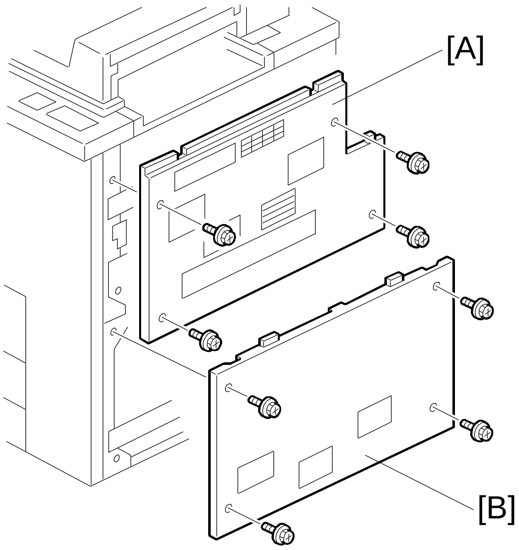
Left Door

1. Open the left door [A].
2. Remove the stopper [B] (1 screw).
3. Lift up the left door and remove it.

Right Door

1. Open the right door [C].
2. Remove the stopper [D] (1 screw).
3. Lift up the right door and remove it.

6.1.2 RIGHT



A294R946.WMF

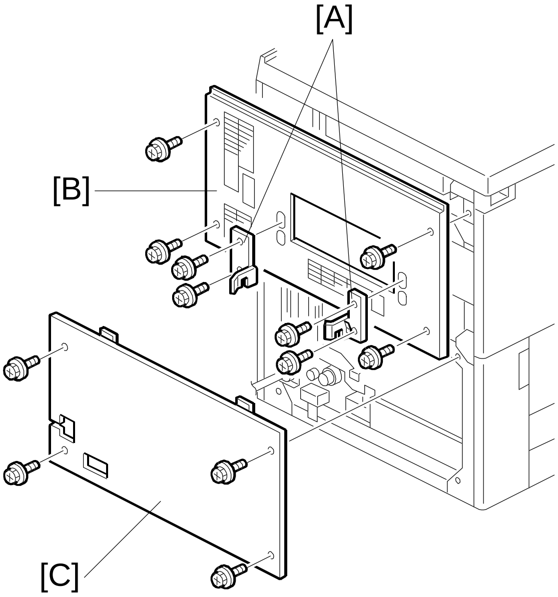
Upper Right Cover

1. Remove the upper right cover [A] (4 screws).

Lower Right Cover

1. Remove the lower right cover [B] (4 screws).

6.1.3 LEFT



A294R910.WMF

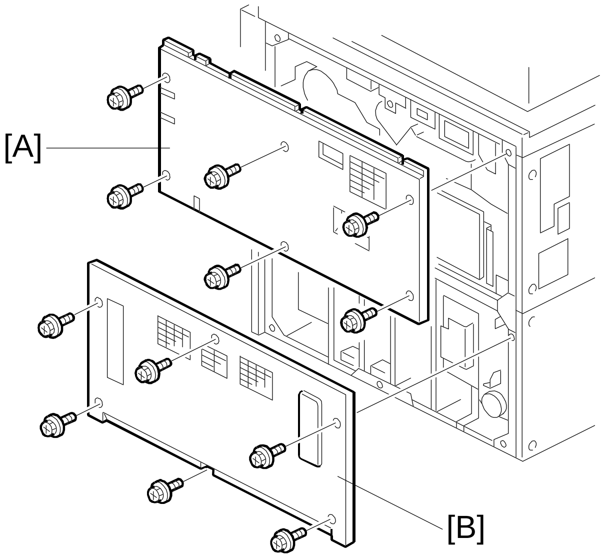
Upper Left Cover

1. Remove the optional finisher, if it is installed.
2. Remove the front and rear joint brackets [A] (2 screws each), if the optional finisher was installed.
3. Remove the upper left cover [B] (4 screws)

Lower Left Cover

1. Remove the lower left cover [C] (4 screws).

6.1.4 REAR



A294R911.WMF

Upper Rear Cover

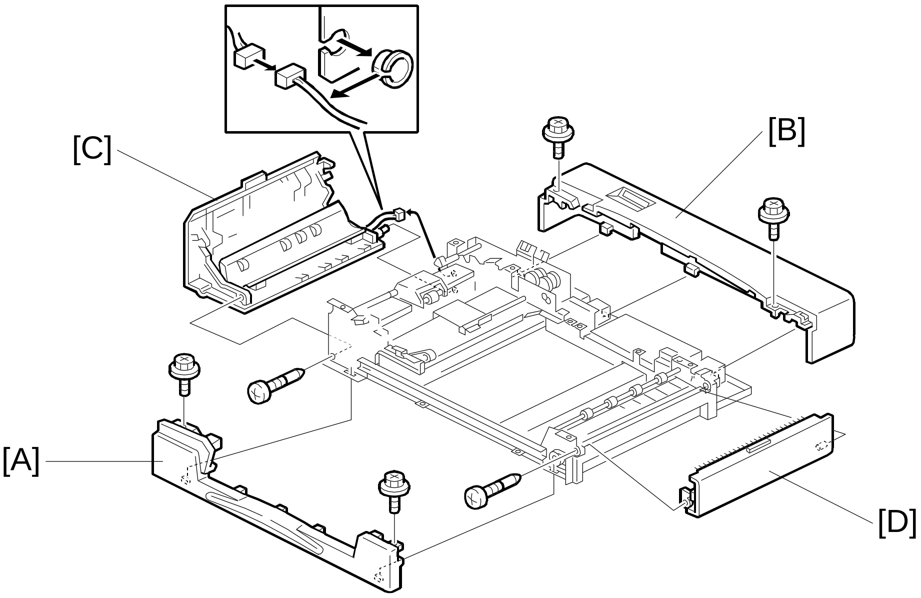
1. Remove the upper rear cover [A] (6 screws).

Lower Rear Cover

1. Remove the lower rear cover [B] (6 screws).

6.2 DOCUMENT FEEDER

6.2.1 COVER REMOVAL



B301R106.WMF

Front Cover Removal

1. Remove the front cover [A] (2 screws).

Rear Cover Removal

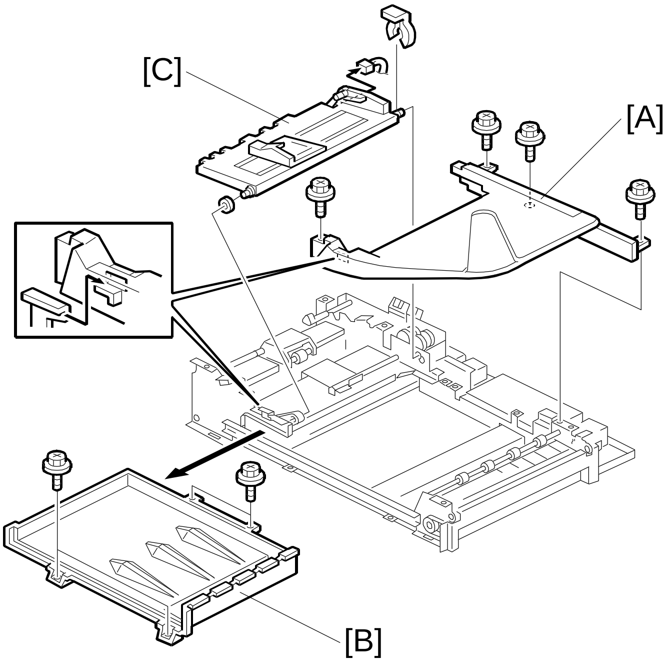
1. Remove the rear cover [B] (3 screws).

Left Cover Removal

1. Remove the front cover.
2. Remove the grounding wire (not shown) (1 screw).
3. Remove the left cover [C] (1 screw, 2 connectors).

Upper Exit Cover Removal

1. Remove the front cover.
2. Remove the upper exit cover [D] (1 screw).



B301R105.WMF

Original Tray Removal

1. Remove the front and rear covers.
2. Remove the original tray [A] (4 screws).

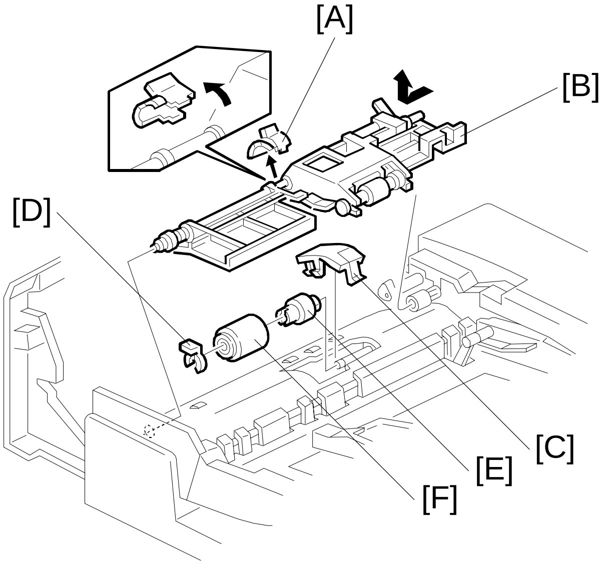
Upper Cover Removal

1. Remove the front and rear covers.
2. Remove the original tray.
3. Remove the upper cover [B] (2 screws).

Bottom Plate Removal

1. Remove the front and rear covers.
2. Remove the original tray.
3. Remove the bottom plate [C] (1 snap ring, 1 connector).

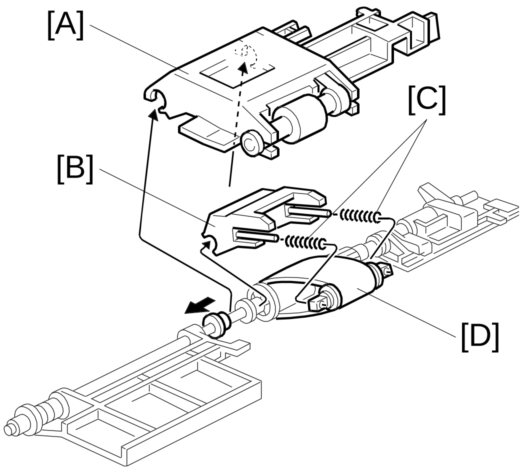
6.2.2 FEED UNIT REMOVAL AND SEPARATION ROLLER REPLACEMENT



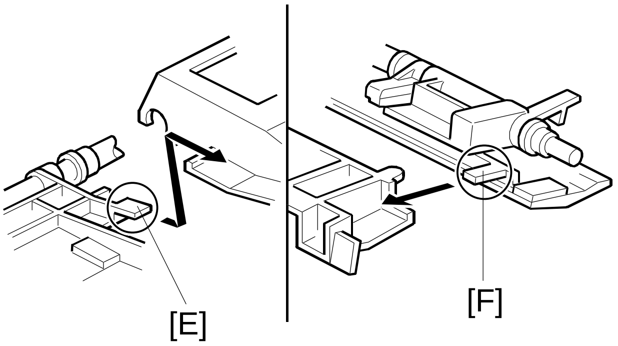
B301R107.WMF

1. Open the left cover.
2. Remove the clip [A].
3. Remove the feed unit [B].
   (Pull the feed unit to the front, release the shaft at the rear, and release the front bushing.)
4. Remove the separation roller cover [C].
5. Remove the snap ring [D].
6. Remove the torque limiter [E] and separation roller [F].

6.2.3 FEED BELT REPLACEMENT



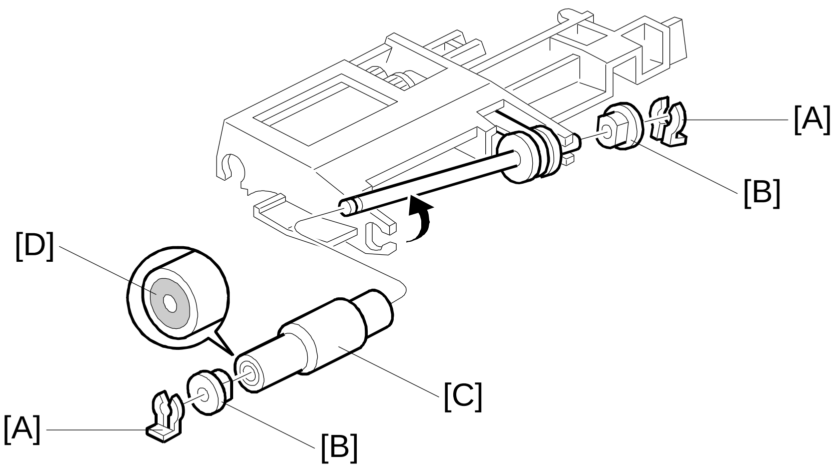
B301R504.WMF



B301R513.WMF

1. Remove the feed unit.
2. Remove the pick-up roller unit [A].
3. Remove the feed belt holder [B].
   NOTE: The springs [C] come off the feed belt cover easily.
4. Replace the feed belt [D].
   NOTE: When reinstalling the pick-up roller unit, make sure that levers [E] and [F] on the front and rear original guides are resting on the pick-up roller unit cover.

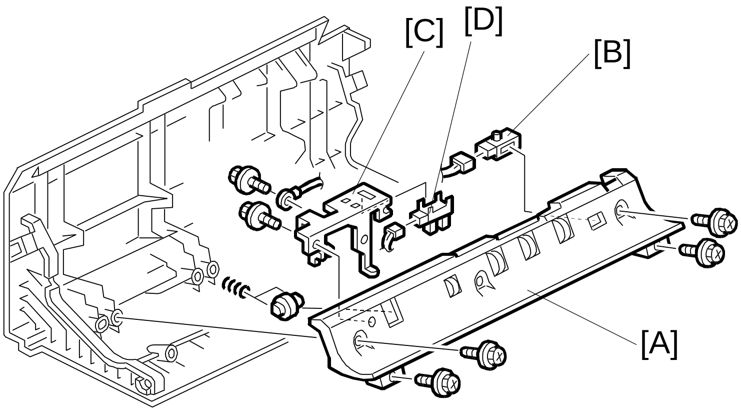
6.2.4 PICK-UP ROLLER REPLACEMENT



B301R514.WMF

1. Open the left cover.
2. Remove the two snap rings [A].
3. Remove the two bushings [B].
4. Replace the pick-up roller [C].
   NOTE: When reinstalling the pick-up roller, make sure that the one-way clutch [D] is not at the gear side.

6.2.5 SENSOR REPLACEMENT



B301R125.WMF

1. Remove the left cover.
2. Remove the guide plate [A] (5 screws).

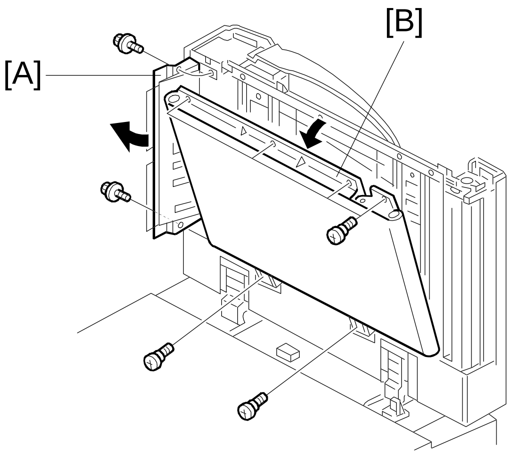
Entrance Sensor

3. Replace the entrance sensor [B] (1 connector).

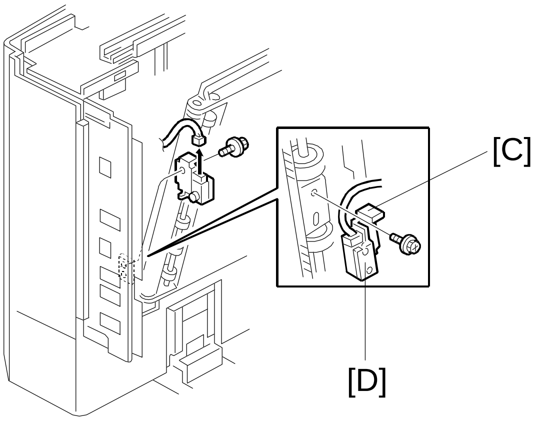
Length Sensor

3. Remove the length sensor bracket [C] (1 screw).
4. Replace the length sensor [D] (1 connector).

Registration Sensor



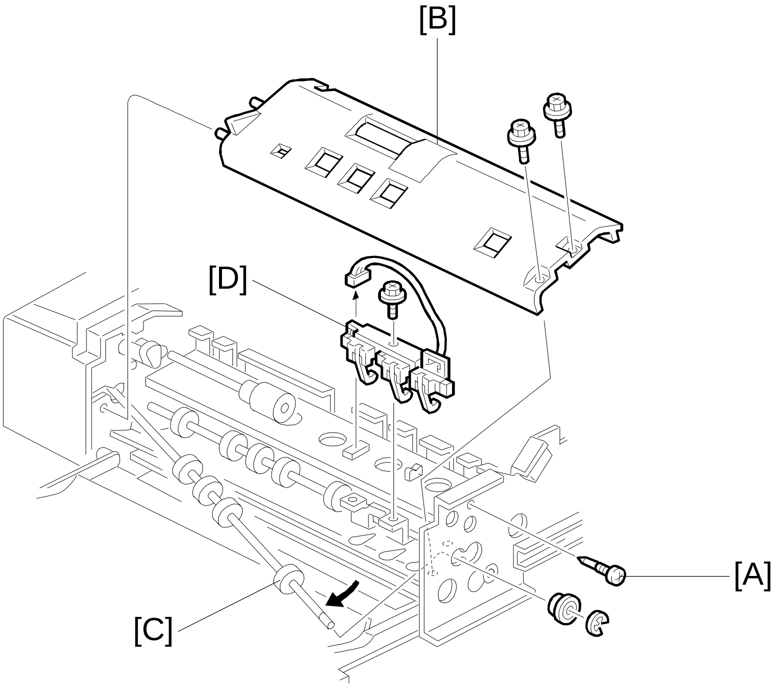
B301R103.WMF



B301R108.WMF

1. Release the entrance guide [A] (2 screws).
2. Release the transport belt unit [B].
3. Remove the sensor bracket [C] (1 screw).
4. Replace the registration sensor [D] (1 connector, 1 screw).

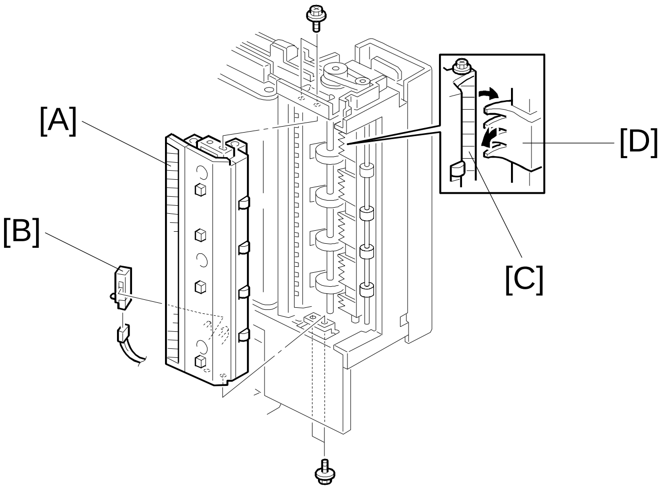
Width Sensor



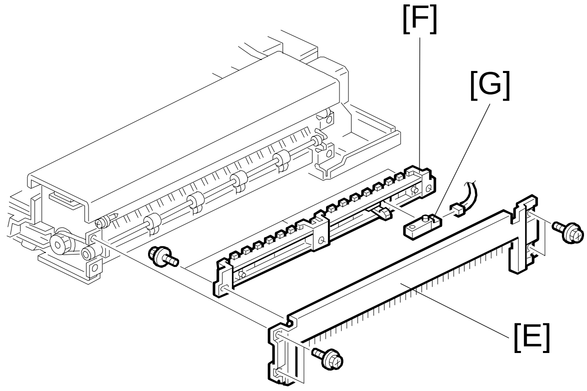
B301R507.WMF

1. Remove the feed unit.
2. Remove the front cover.
3. Remove the stopper screw [A].
4. Remove the guide plate [B] (2 screws).
5. Release the front end of the upper transport roller [C] (1 bushing, 1 E-ring).
6. Remove the sensor unit [D] (1 screw).
7. Replace the width sensor.

Exit Sensor and Inverter Sensor



B301R509.WMF



B301R508.WMF

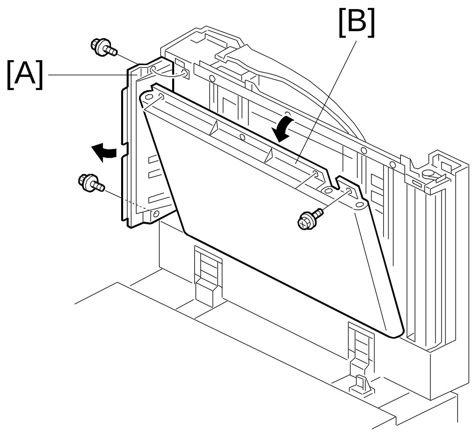
Exit Sensor

1. Remove the front and rear covers.
2. Remove the exit guide unit [A] (4 screws).
3. Replace the exit sensor [B] (1 connector).
   NOTE: When reinstalling the exit guide unit, make sure that the guide plate [C] on the exit unit is over the exit gate [D].

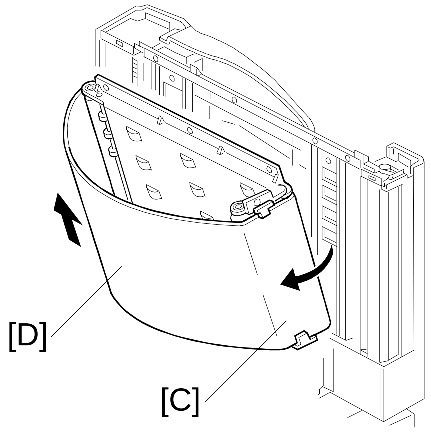
Inverter Sensor

1. Remove the front and rear covers.
2. Remove the right lower cover [E] (4 screws).
3. Remove the guide plate [F] (3 screws).
4. Replace the inverter sensor [G] (1 connector).

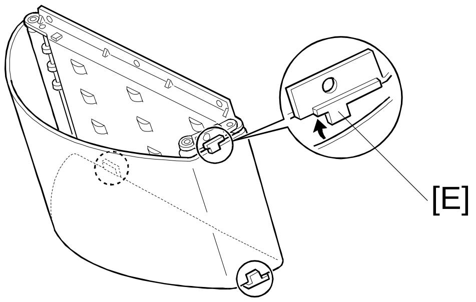
6.2.6 TRANSPORT BELT REPLACEMENT



B301R113.WMF



B301R511.WMF



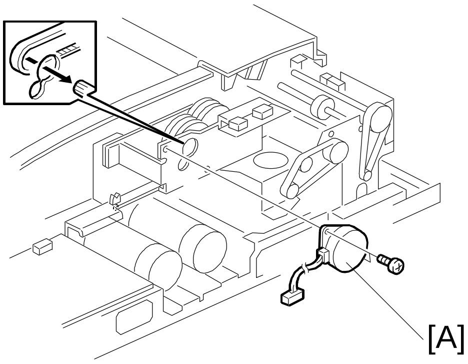
B301R512.WMF

1. Remove the front cover.
2. Release the entrance guide [A] (2 screws).
3. Remove the three screws securing the transport belt assembly [B].
4. Fold up the transport belt assembly extension [C].
5. Pull off the transport belt [D] and replace it.

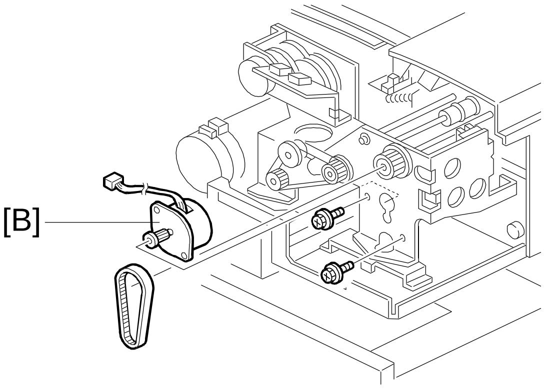
NOTE: When installing the transport belt, make sure that the belt runs under the upper and lower belt guide spacers [E].

6. Using SP6-009, do a DF free run for 3 minutes. After the free run is finished, clean off any dust that came off the transport belt onto the exposure glass.

6.2.7 MOTOR REPLACEMENT



B301R119.WMF



B301R121.WMF

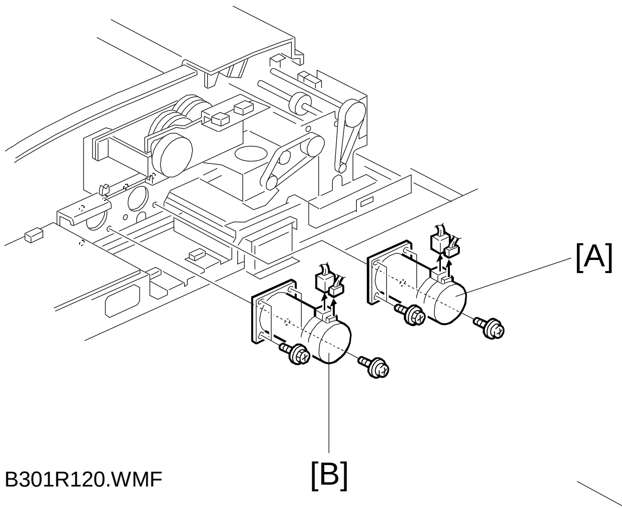
1. Remove the rear cover.

Bottom Plate Motor

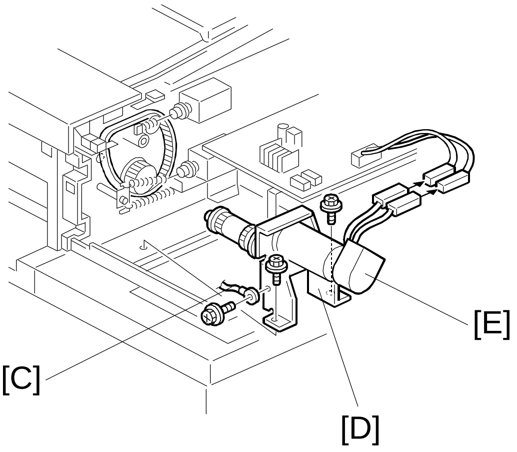
2. Replace the bottom plate motor [A] (2 screws, 1 connector).

Pick-up Motor

2. Replace the pick-up motor [B] (2 screws, 1 connector).



B301R120.WMF



B301R117.WMF

1. Remove the rear cover.

Feed-in Motor

2. Replace the feed-in motor [A] (4 screws, 2 connectors).

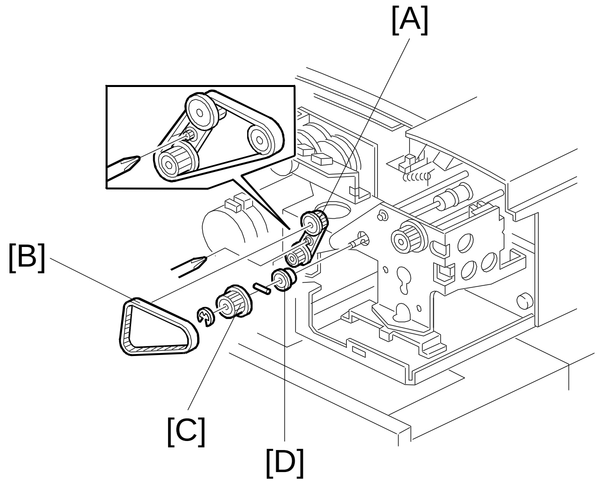
Transport Motor

2. Replace the transport motor [B] (4 screws, 2 connectors).

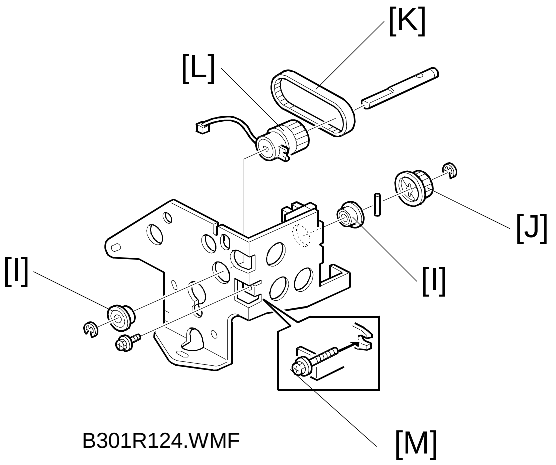
Feed-out Motor

2. Remove the grounding wire [C] (1 screw).
3. Remove the feed-out motor assembly [D] (2 screws, 2 connectors).
4. Replace the feed-out motor [E] (2 screws).

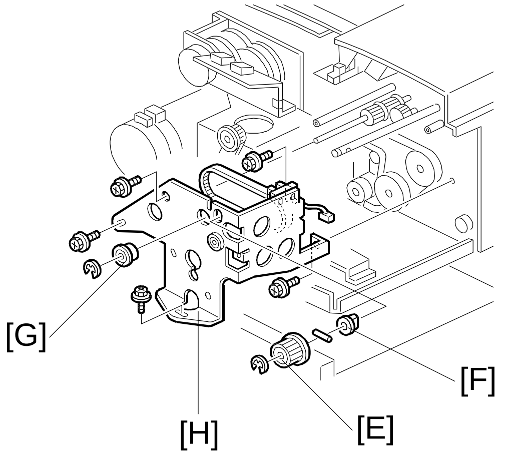
6.2.8 FEED-IN CLUTCH REPLACEMENT



B301R122.WMF



B301R124.WMF

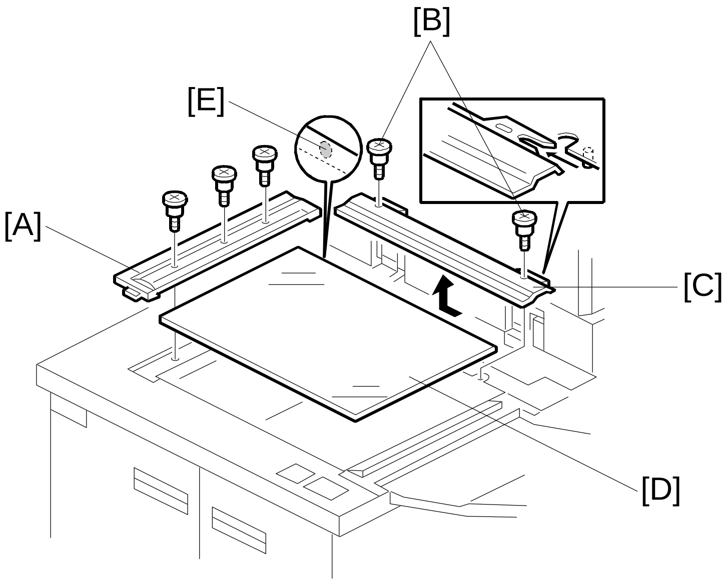


B301R123.WMF

1. Remove the rear cover.
2. Remove a screw from the tightener [A].
3. Remove the timing belt [B].
4. Remove the pulley [C] and ball bearing [D] from the feed-in drive shaft (1 E-ring, 1 pin).
5. Remove the pulley [E] and bushing [F] from the pick-up roller cam shaft (1 E-ring, 1 pin)
6. Remove the ball bearing [G] from the feed belt drive shaft (1 E-ring).
7. Remove the feed-in clutch assembly [H] (5 screws).
8. Remove 2 ball bearings [I] from the feed-in clutch shaft (1 E-ring each).
9. Remove the pulley [J], pin and timing belt [K].
10. Replace the feed-in clutch [L].
    NOTE: When re-installing the feed-in clutch, put the stopper screw [M] in the clutch hook.

6.3 SCANNER UNIT

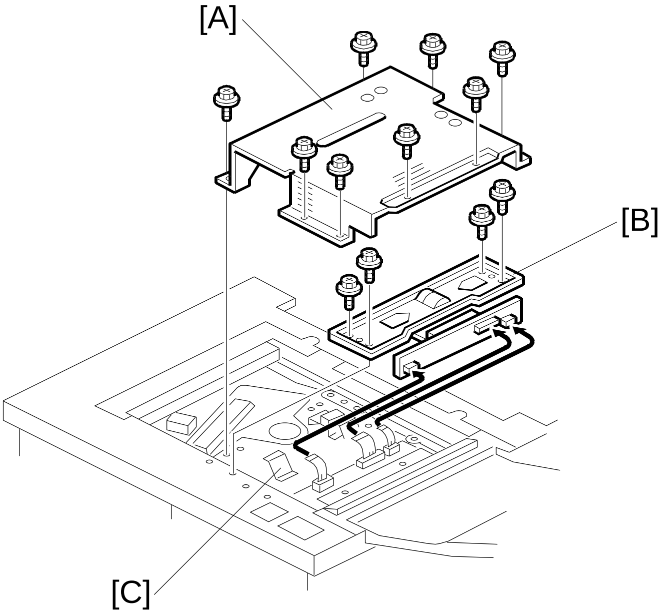
6.3.1 EXPOSURE GLASS



A294R001.WMF

1. Remove the left scale [A] (3 screws).
2. Remove the 2 screws [B] holding the rear scale.
3. Slide the rear scale [C] in the direction of the arrow, then remove it.
4. Remove the exposure glass [D].
   NOTE: When reinstalling the exposure glass, make sure that the mark [E] is at the rear left corner, as shown.

6.3.2 LENS BLOCK

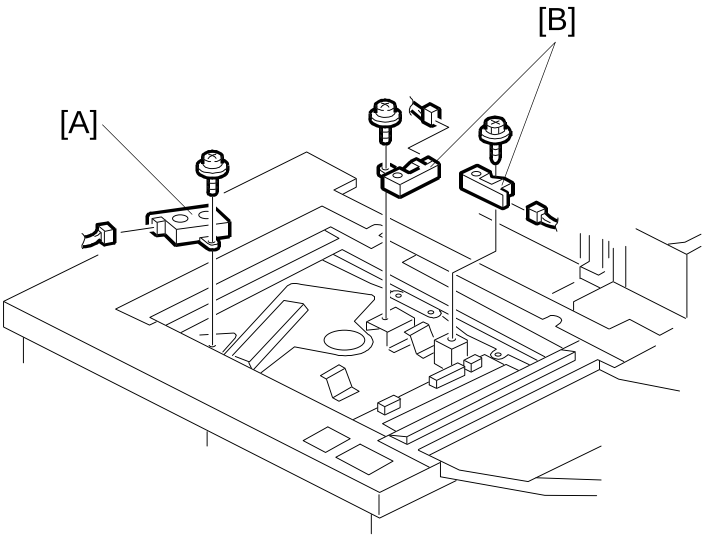


A294R003.WMF

1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the lens cover [A] (8 screws).
3. Remove the lens block [B] (4 screws, 3 connectors).
4. After reassembly, do the scanner and printer copy adjustment. (See Replacement and Adjustment – Copy Image Adjustment.)

NOTE: Do not drive the scanner unit without the lens cover. The grounding plates [C] will contact the 1st scanner and damage the scanner.

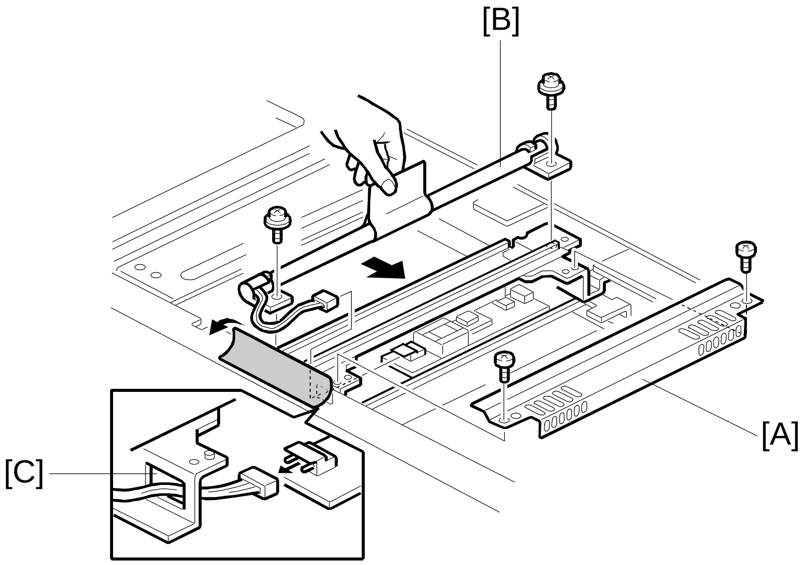
6.3.3 ORIGINAL SIZE SENSORS



A294R052.WMF

1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the original width sensor [A] (1 screw, 1 connector).
3. Remove the lens cover (8 screws). (See Lens Block.)
4. Remove the original length sensors [B] (1 screw, 1 connector each).

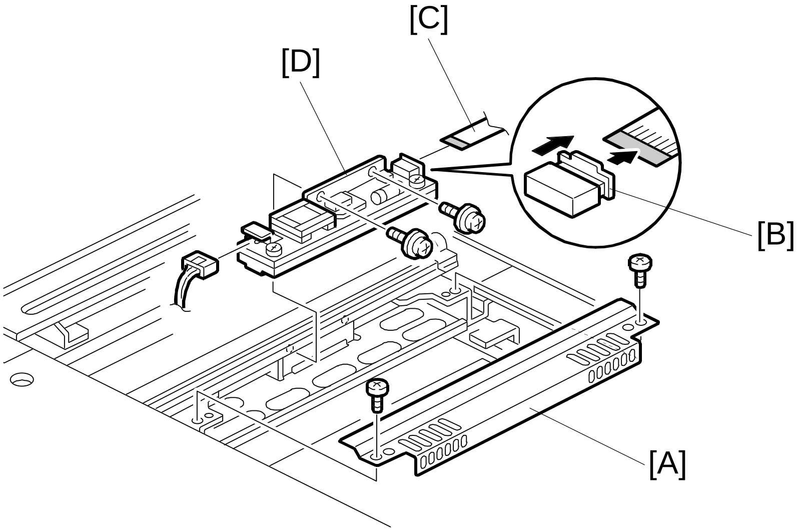
6.3.4 EXPOSURE LAMP



A294R050.WMF

1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the front upper cover (7 screws, 1 connector). See Scanner Motor Removal.
3. Remove the lamp regulator cover [A] (2 screws).
4. Remove the exposure lamp [B] (2 screws, 1 connector).
   NOTE: When reinstalling the exposure lamp, pass the cable through the opening [C] in the bracket.

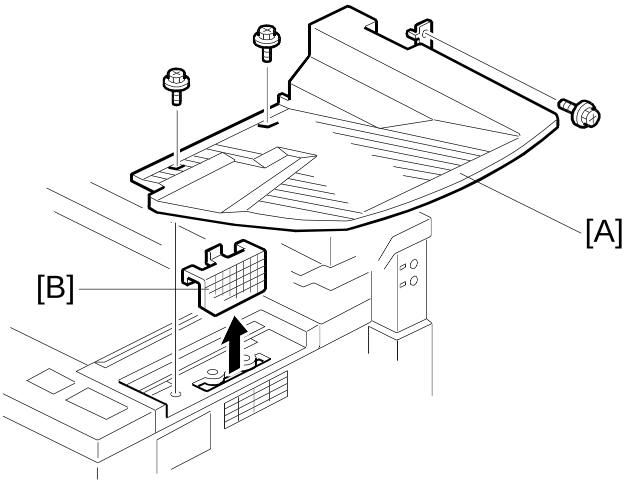
6.3.5 LAMP REGULATOR



A294R007.WMF

1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the lamp regulator cover [A] (2 screws).
3. Slide the holder [B] in the direction of the arrow. Then disconnect the flat cable [C].
4. Remove the lamp regulator [D] (2 screws, 1 connector).

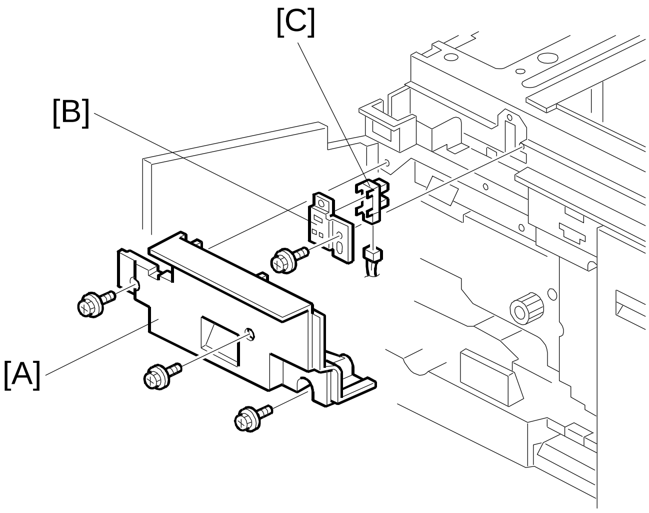
6.3.6 OPTICS DUST FILTER



A294R006.WMF

1. Remove the original exit tray [A] (3 screws).
2. Remove the optics dust filter [B].

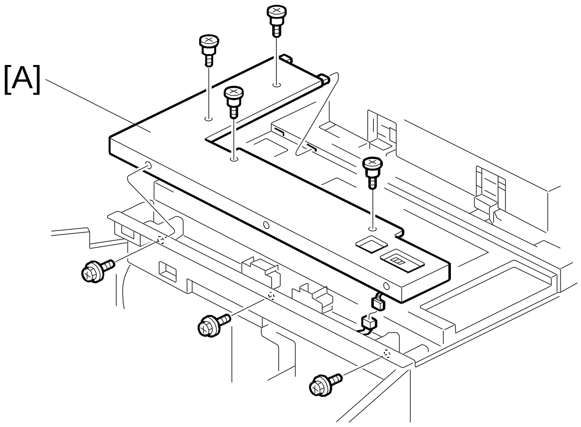
6.3.7 SCANNER H.P. SENSOR



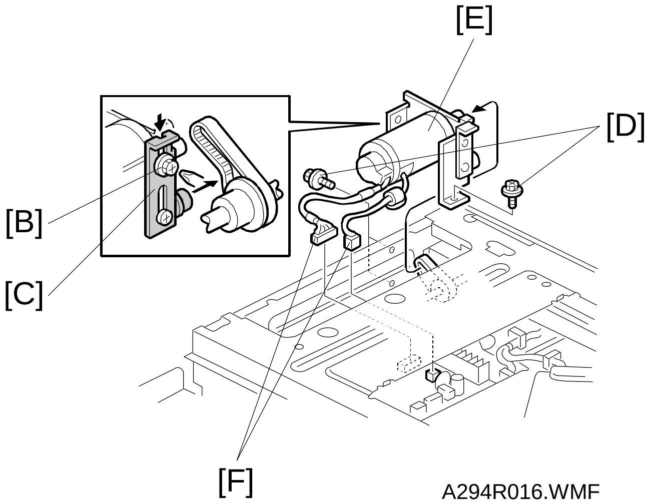
A294R017.WMF

1. Remove the front upper cover (7 screws, 1 connector). See Scanner Cover Removal.
2. Remove the left upper inner cover [A] (3 screws).
3. Remove the scanner H.P. sensor bracket [B] (1 screw).
4. Remove the scanner H.P. sensor [C] (1 connector).

6.3.8 SCANNER MOTOR



A294R058.WMF

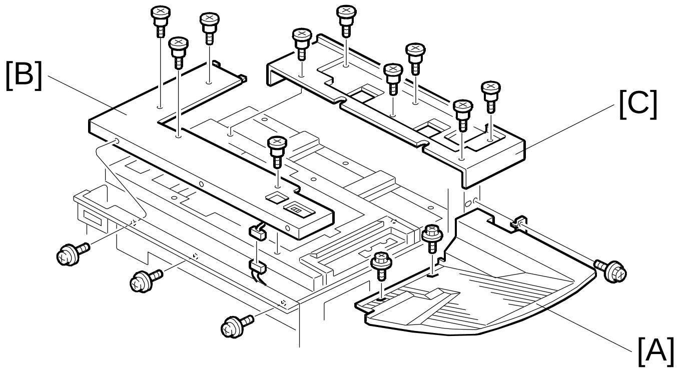


A294R016.WMF

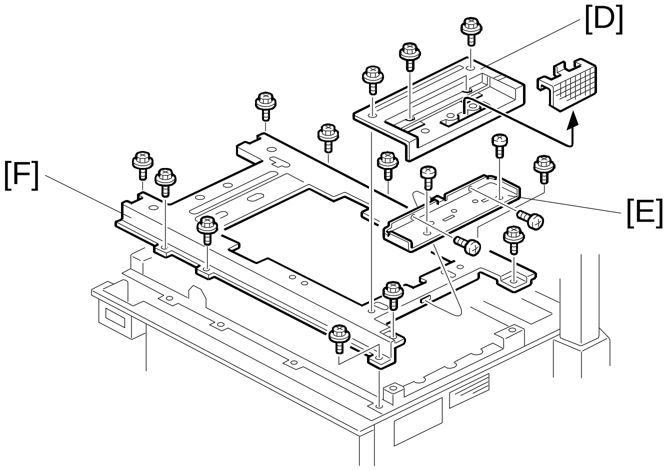
1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the upper left cover. (See Exterior.)
3. Remove the front upper cover [A] (7 screws, 1 connector).
4. Loosen the screw [B] holding the belt tension bracket [C].
5. Remove the 3 screws [D] securing the scanner motor assembly [E].
6. Disconnect the two connectors [F] from the MCU.
7. While pushing down the bracket [C] to release belt tension, remove the scanner motor assembly.
8. Remove the scanner motor from the bracket (3 screws) and replace it.
9. After reassembly, do the copy image adustments.

6.3.9 SCANNER DRIVE WIRES

Preparation



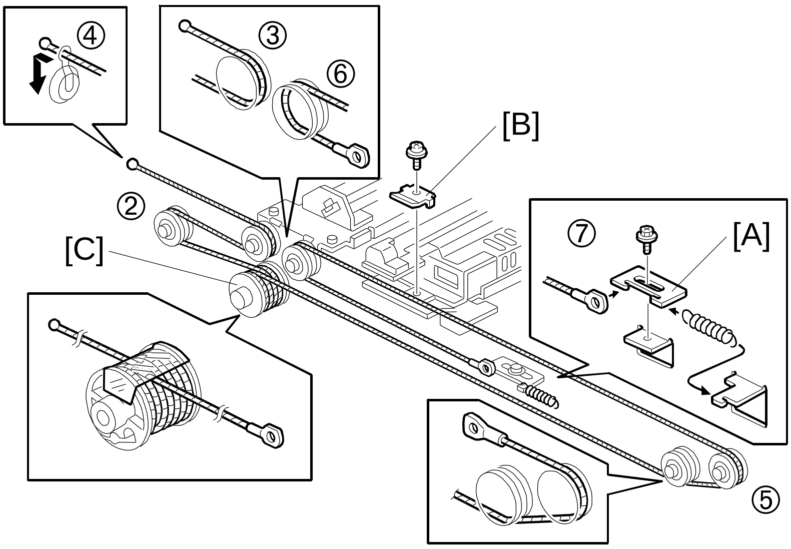
A294R011.WMF



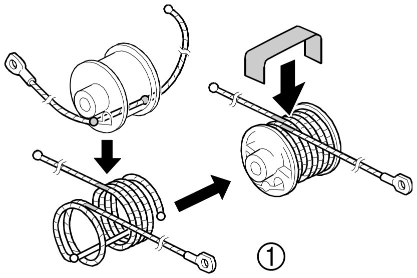
A294R012.WMF

1. Remove the ADF.
2. Remove the original exit tray [A] (3 screws).
3. Remove the scanner front cover [B] (7 screws, 1 connector) and the rear upper cover [C] (6 screws).
4. Remove the scanner right cover [D] (4 screws).
5. Remove the bracket [E] (4 screws).
6. Remove the scanner frame [F] (10 screws).

Scanner Drive Wires (Front and Rear)



A294R013.WMF

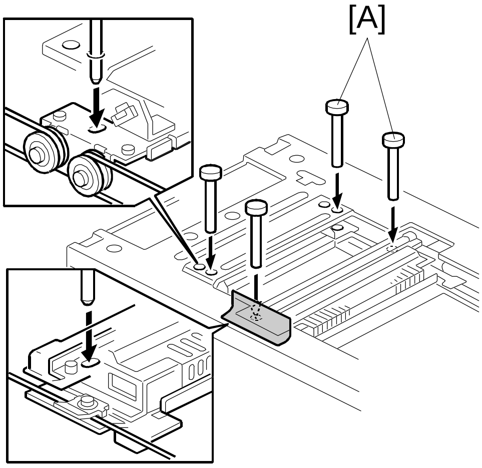


A294R014.WMF

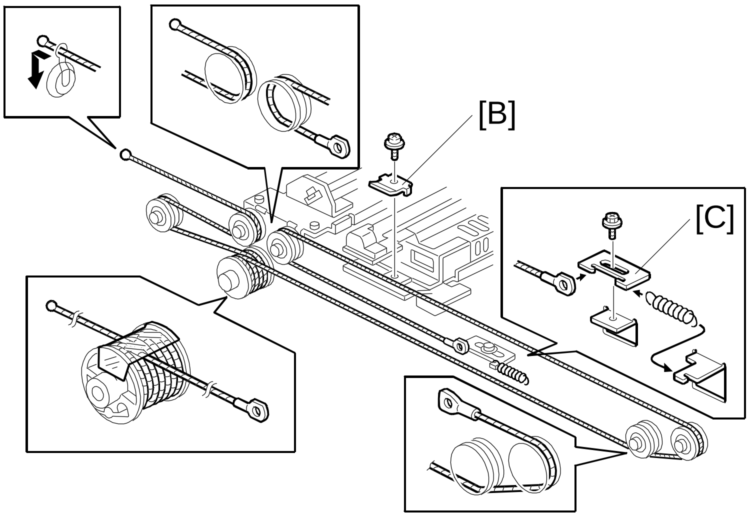
1. Remove the wire tension bracket [A] (1 screw).
2. Remove the front scanner wire bracket [B].
3. Remove the front scanner wire.

Reinstallation

4. Remove the scanner wire pulley [C] (1 screw).
5. While making sure of the direction, place the beads on the middle of the wire on the pulley openings. Then wind the wire (ball side) 3 times and the other side (ring side) once as shown ①. Secure the pulley with tape to keep this condition.
6. Install the pulley on the scanner drive shaft (1 screw).
7. Wind the end of the wire with the ball as shown (②, ③, and ④).
8. Wind the end of the wire with the ring as shown (⑤, ⑥, and ⑦).
9. Install the tension spring on the tension bracket, and slightly tighten the tension bracket (1 screw).



A294R015.WMF



A294R013.WMF

10. Install the 1st scanner and adjust the position with the positioning tools (P/N A0069104) [A].
11. Secure the 1st scanner with the scanner wire bracket [B] (1 screw).
12. Fully tighten the tension bracket [C].
13. Remove the positioning tools. After sliding the scanner to the right and left several times, set the positioning tools to check the scanner wire bracket and the tension bracket again.
14. Reassemble the scanner and do the scanner and copy adjustments (see Replacement and Adjustment – Copy Image Adjustments).

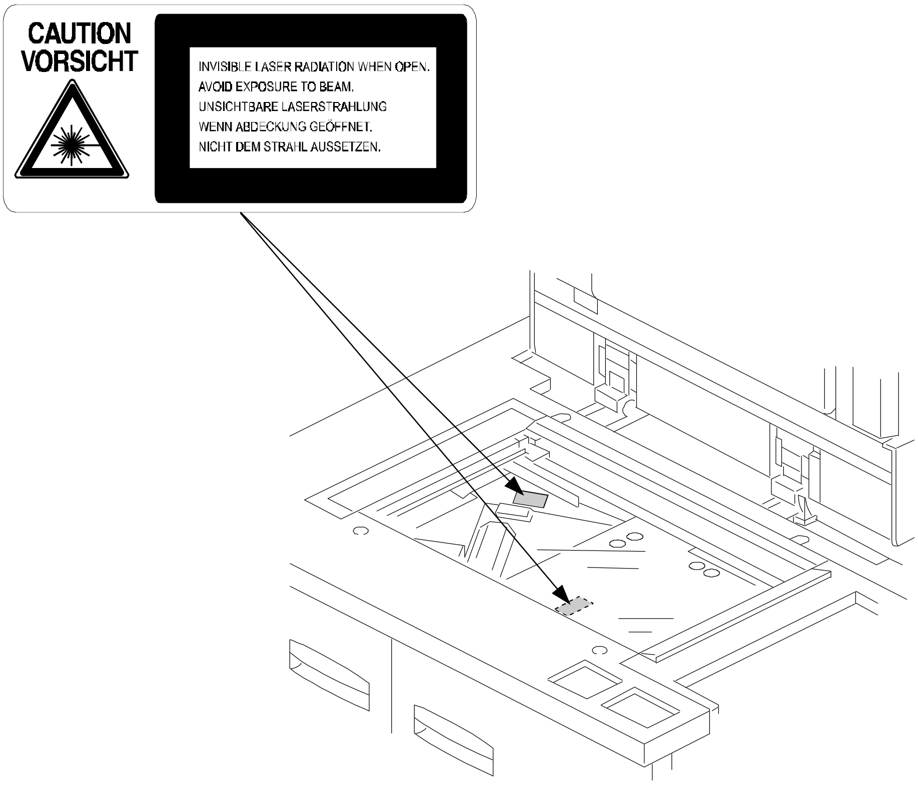
6.4 LASER UNIT

⚠WARNING

Turn off the main power switch and unplug the machine before attempting any of the procedures in this section. Laser beams can seriously damage your eyes.

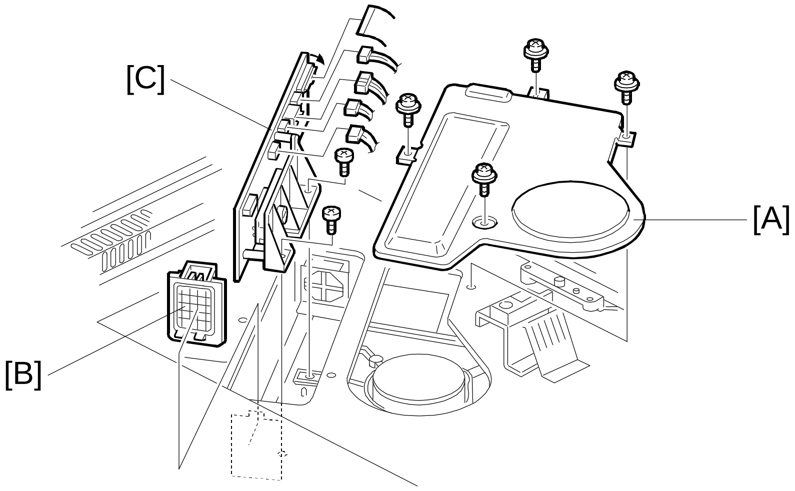
6.4.1 CAUTION DECAL LOCATIONS

There are two caution decals in the laser section as shown below.


CAUTION
VORSICHT
INVISIBLE LASER RADIATION WHEN OPEN.
AVOID EXPOSURE TO BEAM.
UNSICHTBARE LASERSTRAHLUNG
WENN ABDECKUNG GEÖFFNET.
NICHT DEM STRAHL AUSSETZEN.

A294R106.WMF

6.4.2 LDB AND LD FILTER REPLACEMENT



A294R102.WMF

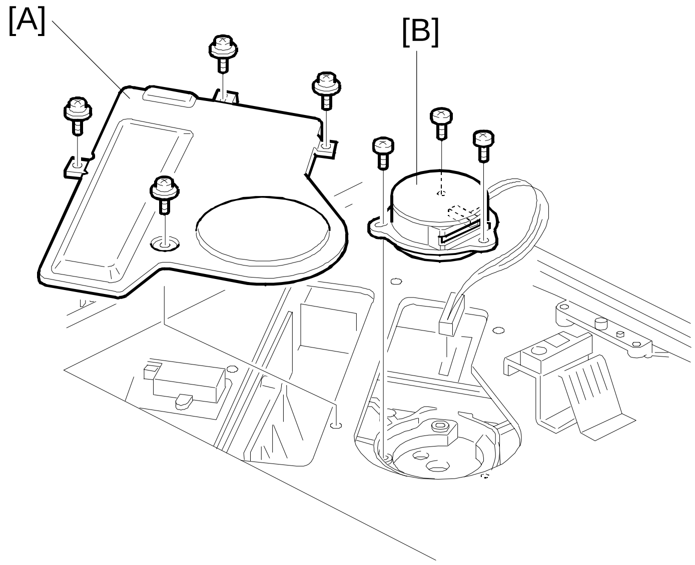
⚠WARNING

Turn off the main power switch and unplug the machine before attempting this procedure. Laser beams can seriously damage your eyes.

NOTE: Do not touch the printed circuit board, to avoid damaging the board with static electricity.

1. Remove the exposure glass. (See Exposure Glass Removal.)
2. Remove the LD cover [A] (4 screws).
3. Remove the LD filter [B].
4. Replace the LDB [C] (2 screws and 5 connectors).
   NOTE: When disconnecting the cables, hold the LD unit.
5. Do SP 2-962 (process control initialization).

6.4.3 POLYGON MIRROR MOTOR REPLACEMENT

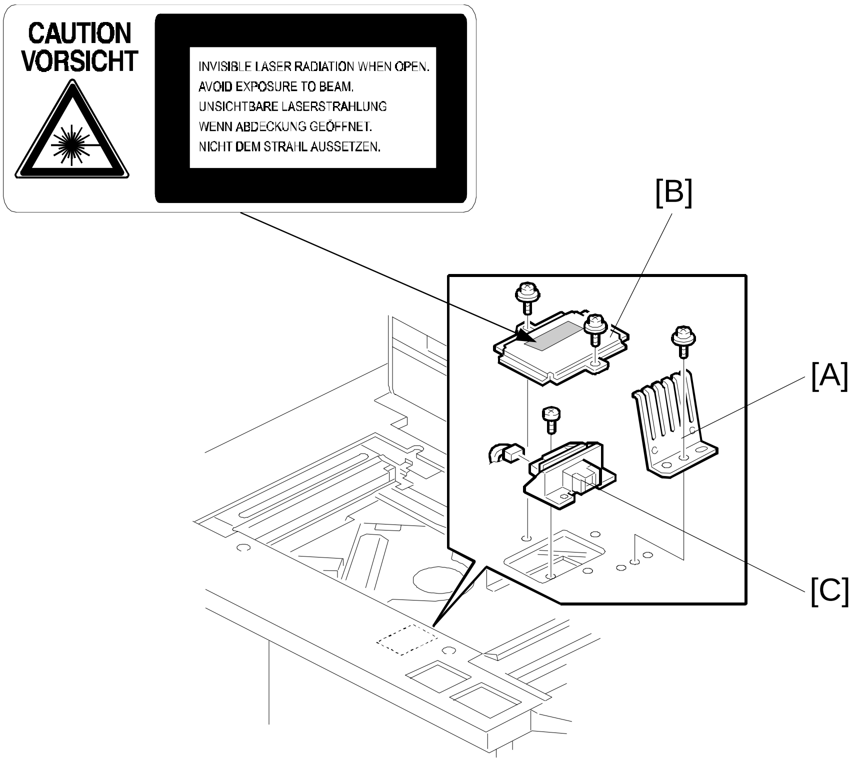


A294R101.WMF

NOTE: Do not remove the polygon mirror motor within 3 minutes after the main switch is turned off (wait until the motor rotation stops). Otherwise, the motor will be damaged.

1. Turn off the main power switch and unplug the machine.
2. Remove the exposure glass. (See Exposure Glass Removal.)
3. Remove the LD cover [A] (4 screws).
4. Replace the polygon mirror motor [B] (3 screws, 1 connector.)
   NOTE: 1) When reinstalling, make sure that the polygon mirror opening faces the right.
   2) Do not touch the glass surface of the polygon mirror motor with bare hands.
5. After reassembly, do the scanner and printer copy adjustments. (See Replacement and Adjustment – Copy Image Adjustments.)

6.4.4 LASER SYNCHRONIZATION DETECTOR REPLACEMENT

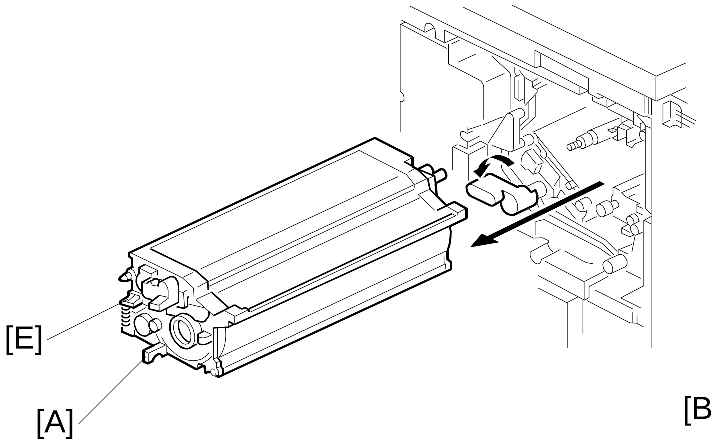

CAUTION
VORSICHT
INVISIBLE LASER RADIATION WHEN OPEN.
AVOID EXPOSURE TO BEAM.
UNSICHTBARE LASERSTRAHLUNG
WENN ABDECKUNG GEÖFFNET.
NICHT DEM STRAHL AUSSETZEN.
[B]
[A]
[C]

A294R105.WMF

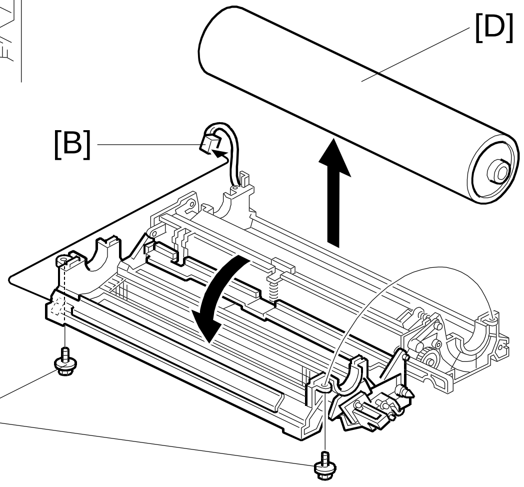
1. Turn off the main power switch and unplug the machine.
2. Remove the ground plate [A] (1 screw).
3. Remove the detector cover [B] (2 screws).
4. Replace the laser synchronization detector [C] (1 screw, 1 connector).

6.5 DRUM UNIT

6.5.1 DRUM UNIT REMOVAL AND DRUM REPLACEMENT



A294R201.WMF

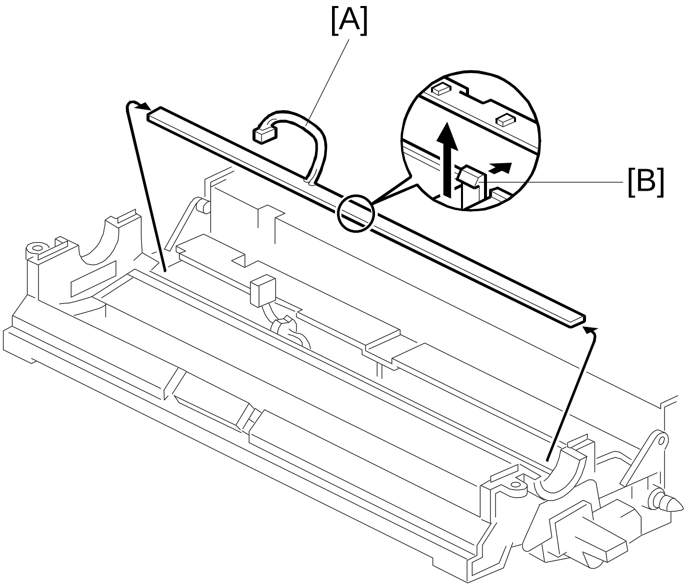


A294R551.WMF

1. Take out the development unit. (Refer to Development Unit Removal.)
2. Lower the transfer belt unit.
3. Take out the drum unit by holding the handle [A].
   NOTE: 1) Cover the drum unit with a sheet of paper to protect it from light when the drum unit is left outside the machine for servicing.
   2) Do not touch the drum surface with bare hands.
4. Disconnect the connector of the drum potential sensor [B].
5. Open the upper drum unit (2 screws [C]).
6. Replace the drum [D]. Then remove the drum protective sheet from the new drum.
   NOTE: If it is hard to completely set the drum unit in the machine because the gear is disengaged, push in the drum unit while holding down the cleaning blade release lever [E].

After installing a new drum, do the following SP mode: 2-962 (process control initialization).

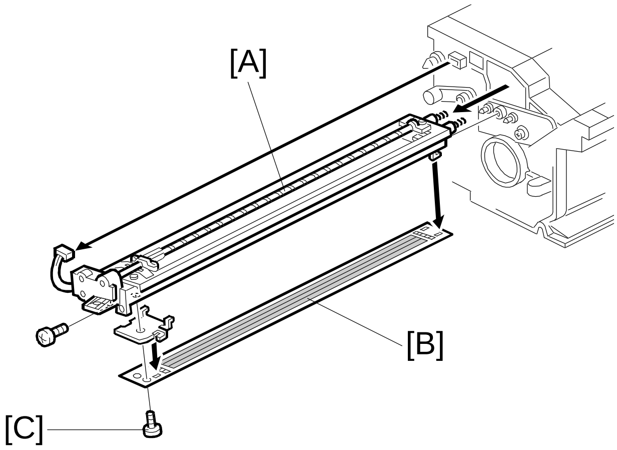
6.5.2 QUENCHING LAMP REPLACEMENT



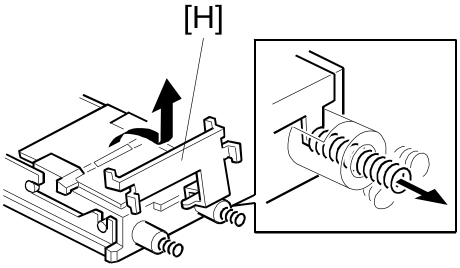
A294R202.WMF

1. Remove the drum. (Refer to Drum Unit Removal and Drum Replacement.)
   NOTE: Wrap a protective sheet or a few sheets of paper around the drum to protect it from light.
2. Slightly pull up the quenching lamp cable [A], then release the hook [B] at the center of the quenching lamp.
   NOTE: Do not pull the wire too strongly.
3. Disconnect the connector [A].
4. Replace the quenching lamp.

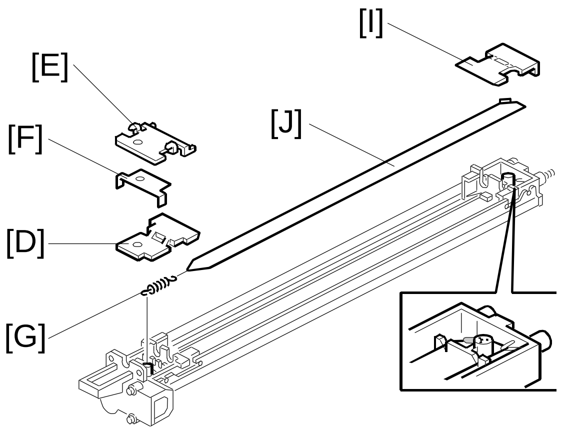
6.5.3 GRID PLATE/CHARGE CORONA WIRE/WIRE CLEANER REPLACEMENT



A294R555.WMF

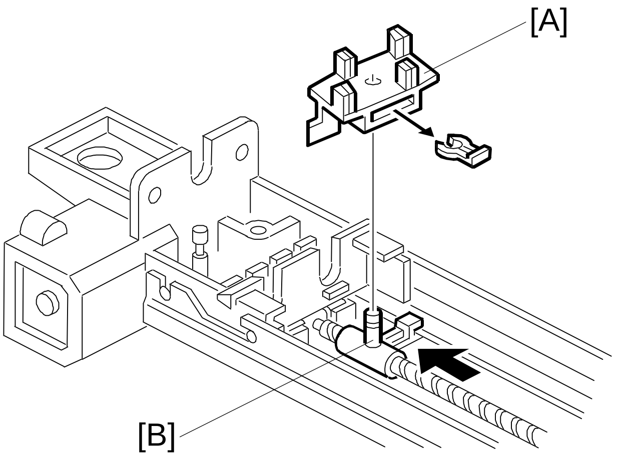


A294R314.WMF



A294R305.WMF

1. Take out the charge corona unit [A] (1 screw, 1 connector).
2. Remove the grid plate [B] (1 plastic screw, 4 hooks).
   NOTE: 1) When installing the grid plate, do not tighten the plastic screw [C] too strongly.
   2) Do not touch the corona wire and grid plate with bare hands.
3. Remove the front grid terminal [D], then the front end block cover [E].
4. Remove the plate [F].
5. Remove the terminal spring [G].
6. Slide the rear grid terminal [H] to the rear and remove it, then remove the rear end block cover [I].
7. Remove the charge corona wire [J].

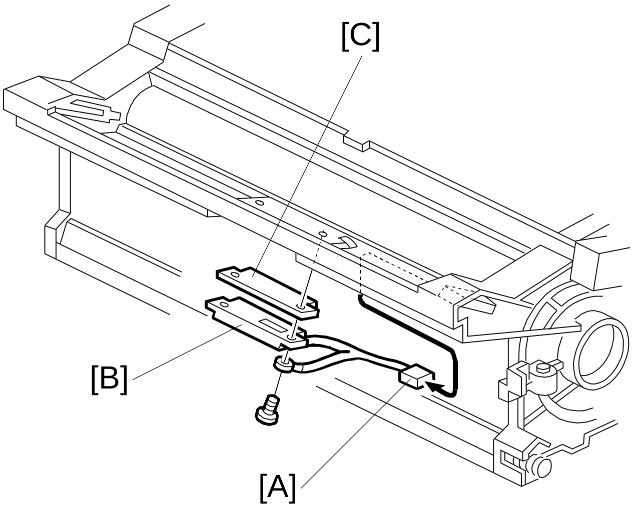


A294R553.WMF

8. Remove the wire cleaner [A] (1 snap ring).
9. Install the wire cleaner and the charge corona wire.
   NOTE: Locate the joint part [B] of the wire in the rear end block as shown.

After installing new wires, reset SP2-001-1 to 2-001-6 (corona voltage and current) to the defaults. Then do SP2-962 (process control initialization).

6.5.4 DRUM POTENTIAL SENSOR REPLACEMENT



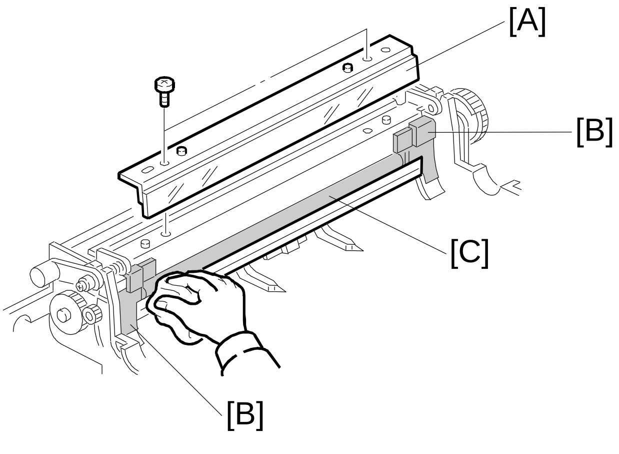
A294R203.WMF

1. Take out the drum unit. (Refer to Drum Unit Removal.)
2. Disconnect the connector [A].
   NOTE: Before removing the drum potential sensor, put a few sheets of paper between the sensor and the drum to protect the drum surface.
3. Remove the drum potential sensor [B] and the grounding plate [C] (2 screws).
4. Replace the drum potential sensor [B].

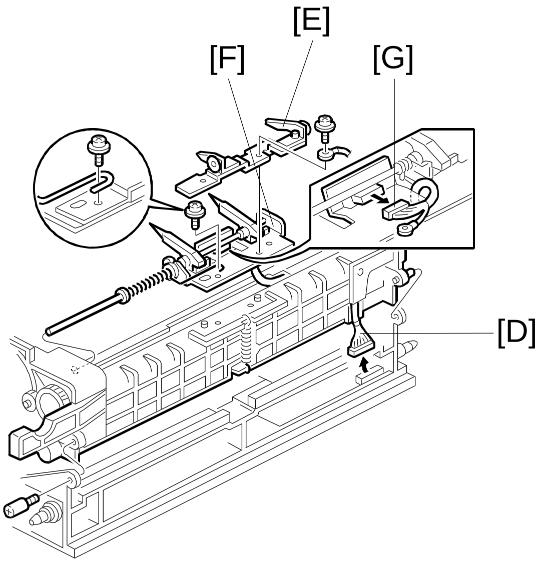
⚠**CAUTION**

After replacing the drum potential sensor, perform the process control data initial setting (SP mode No. 2-962).

6.5.5 CLEANING BLADE/ID SENSOR REPLACEMENT



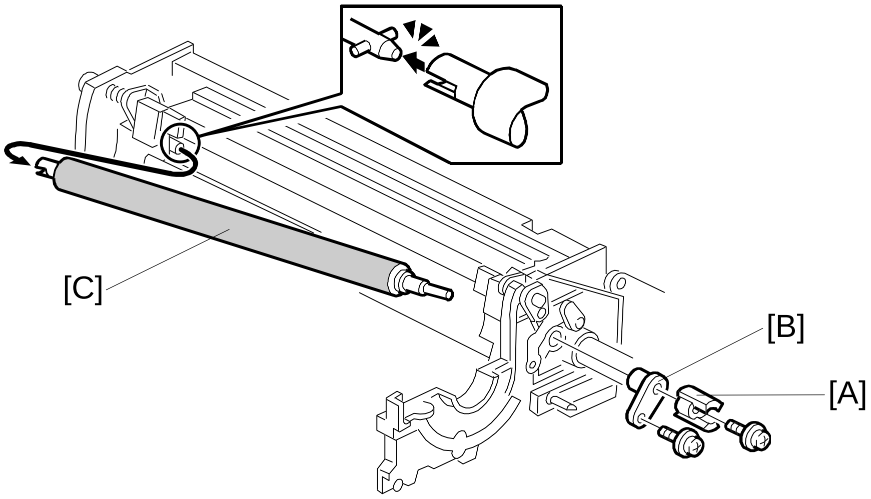
A294R558.WMF



A294R559.WMF

1. Remove the drum. (Refer to Drum Unit Removal and Drum Replacement.)
2. Remove the cleaning blade [A] (2 screws).
3. Clean the side seals [B] and cleaning brush [C].
   NOTE: **When a vacuum cleaner is used**, to protect the electrical parts from static electricity, disconnect the connector on the charge power pack and remove the ID sensor as follows:
   1) Disconnect the 12-pin connector [D].
   2) Separate the upper and lower drum units.
   3) Remove the spur bracket [E] and pick-off pawl bracket [F] (2 screws).
   4) Disconnect the connector [G].
   5) Slide the pick-off pawl bracket to the rear, while turning it counterclockwise (as seen from the front). The ID sensor is on this bracket.
      NOTE: After installing a new ID sensor, do SP3-001-2.
4. Install the new cleaning blade.
   NOTE: Do not clean the edge of the cleaning blade with a cloth; this damages the edge and causes black lines on copies.
   Do not touch the edge of the new cleaning blade. If some setting powder or toner on the blade edge is removed, apply toner at that place.
   When installing the cleaning blade, do not pinch the side seals.

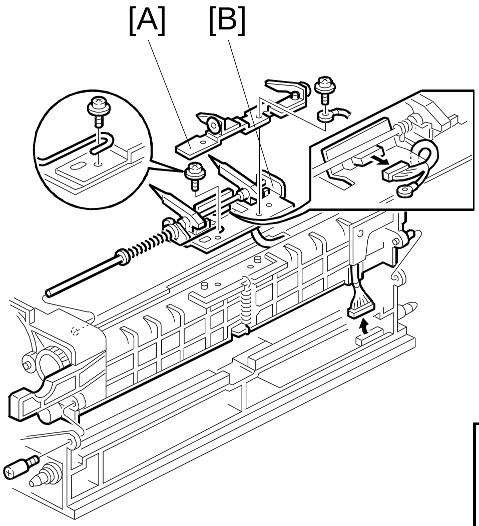
6.5.6 CLEANING BRUSH REPLACEMENT



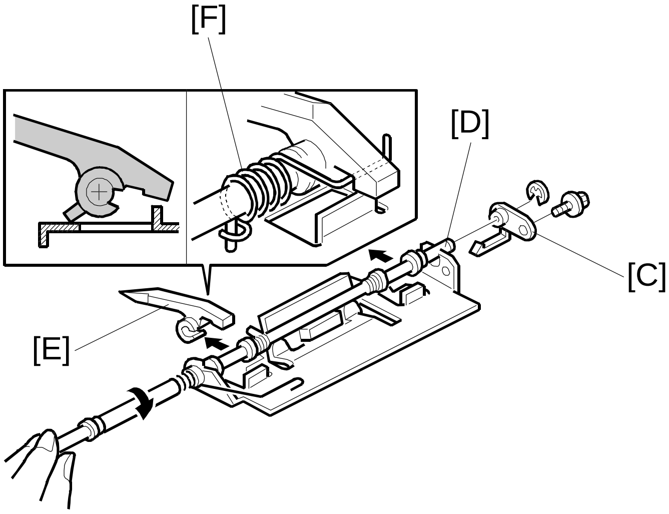
A294R204.WMF

1. Remove the cleaning blade. (Refer to Cleaning Blade Replacement.)
2. Remove the coupling gear [A] (1 screw).
3. Remove the bushing [B] (1 screw).
4. Pull the cleaning brush shaft to the rear to release the cleaning brush [C], then remove the cleaning brush.
   NOTE: Do not touch the cleaning brush with bare hands.
   After replacement, clean the ID sensor surface. Then do SP3-001-2 to initialize the sensor.

6.5.7 PICK-OFF PAWL REPLACEMENT



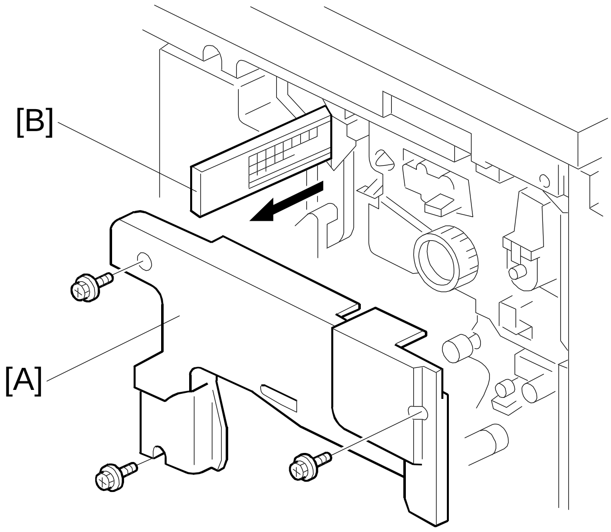
A294R559.WMF



A294R561.WMF

1. Remove the drum. (Refer to Drum Unit Removal and Drum Replacement.)
2. Remove the spur bracket [A] and pick-off pawl bracket [B] (2 screws).
3. Remove the bushing [C] (1 screw, 1 retaining ring).
4. While pulling the shaft [D] to the rear, turn the pick-off pawl shaft about 45 degrees clockwise (as viewed from the front) in order to move up the pick-off pawl.
5. Replace the pick-off pawl [E].
   NOTE: 1) Do not forget to hook the tension spring [F].
   2) After replacement, check that the pick-off pawl moves smoothly.
   3) Do not touch the pick-off pawl edge.

6.5.8 DRUM FILTER REPLACEMENT

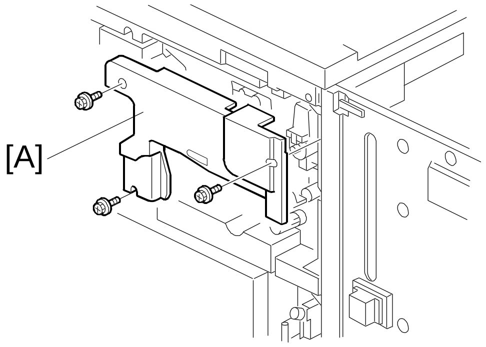


A294R205.WMF

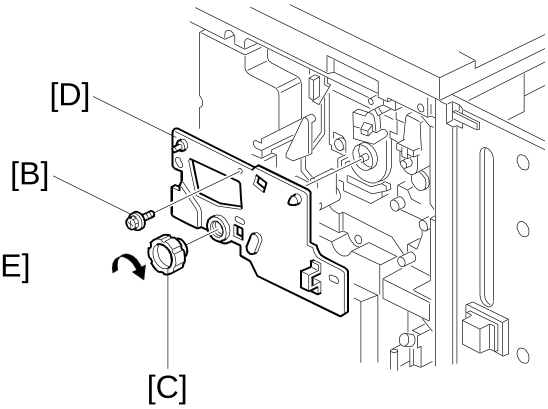
1. Open the front doors.
2. Remove the right inner cover [A] (3 screws).
3. Replace the filter unit [B].

6.6 DEVELOPMENT AND TONER SUPPLY

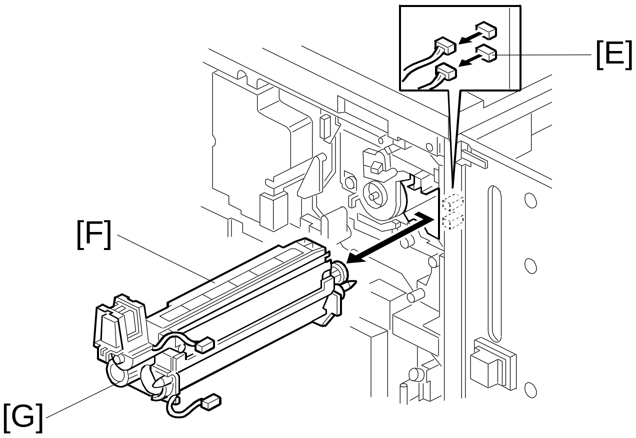
6.6.1 DEVELOPMENT UNIT REMOVAL



A294R008.WMF



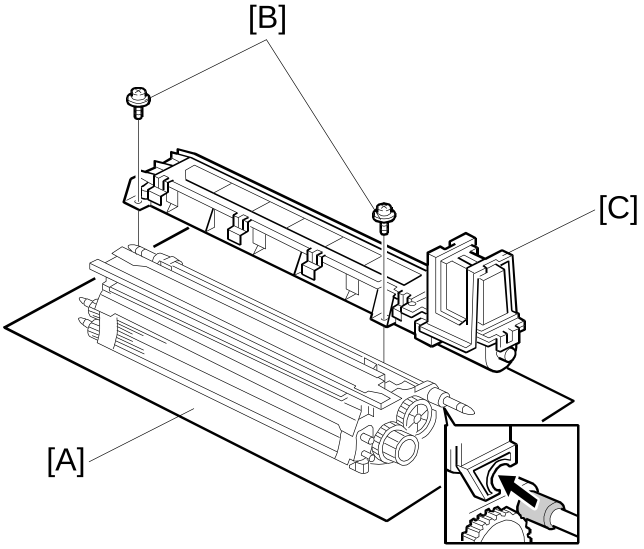
A294R009.WMF



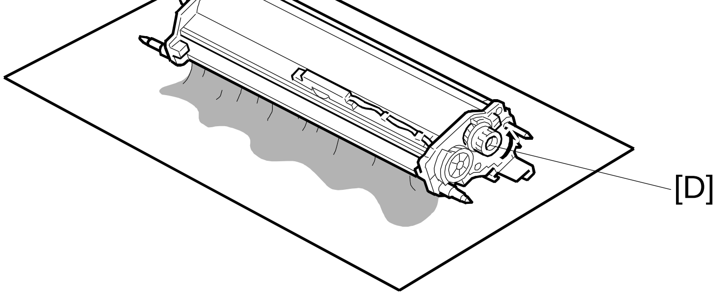
A294R010.WMF

1. Turn off the main switch.
2. Open the right door.
3. Remove the right inner cover [A] (3 screws).
4. Remove the screw [B] that holds the drum stay.
5. Remove the drum stay knob [C] then take out the drum stay [D].
6. Disconnect the two connectors [E].
7. Pull out the development unit [F].
   NOTE: 1) To prevent scratches on the drum, push the development unit to the right while pulling it out.
   2) When installing the development unit, do not forget to connect the two connectors [E].
   3) When pulling out the development unit, do not hold the knob [G].
   4) Keep the development unit connector as far as possible away from the development unit when cleaning the unit with a vacuum cleaner.
   5) When removing the development unit, hold the knob [C] to pull out the unit.

6.6.2 DEVELOPER REPLACEMENT

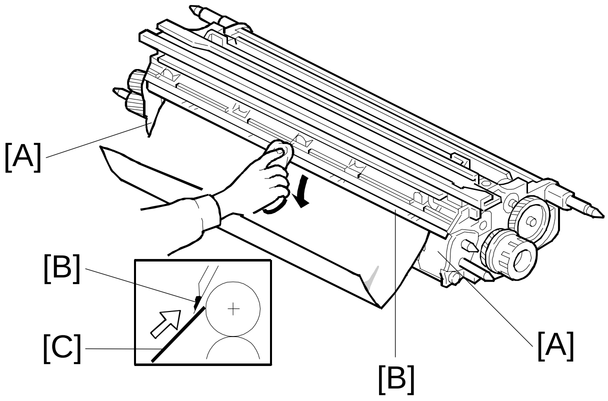


A294R302.WMF

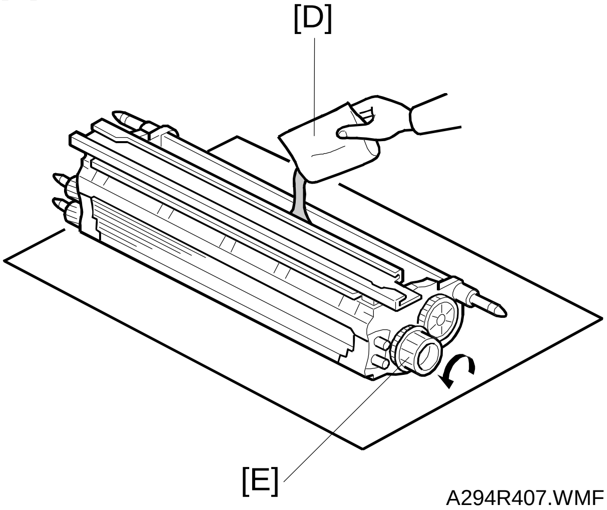


A294R542.WMF

1. Take out the development unit. (Refer to Development Unit Removal.)
2. Place the development unit on a sheet of paper [A].
3. Remove the two screws [B] that hold the toner hopper [C].
4. Remove the toner hopper from the development unit.
5. Turn over the development unit. Then turn the paddle roller knob [D] to empty the remaining developer onto the sheet. (The knob [D] allows the paddle roller to be turned counterclockwise only.)
   NOTE: Dispose of used developer in accordance with local regulations. Make sure that no developer remains on the development rollers or in the development unit.



A294R541.WMF



A294R407.WMF

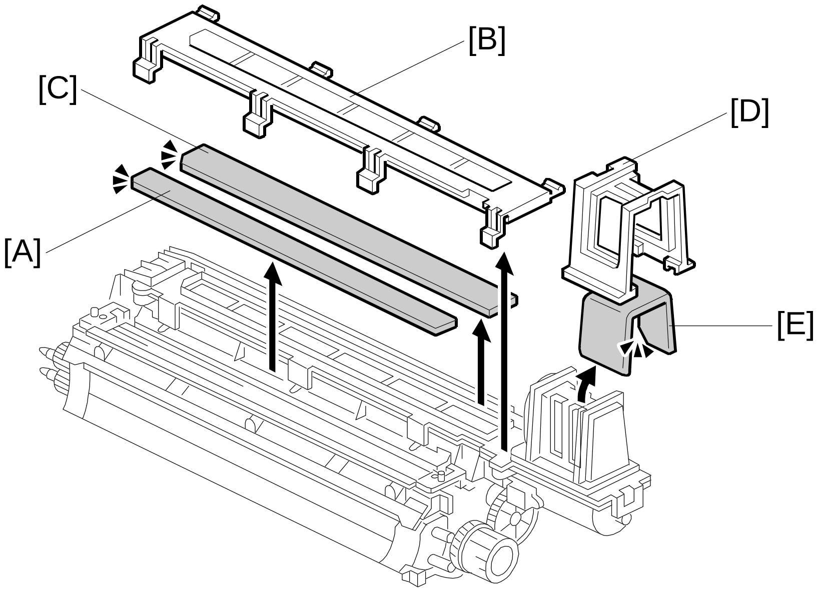
6. Clean the side seals [A] and entrance seal [B].
   NOTE: Cover the sleeve rollers with a sheet of paper [C] to prevent the used developer from being attracted to the sleeve rollers.

7. Pour in one pack of developer [D] evenly across the width of the development unit, while turning the knob [E].

8. Re-install the toner hopper, then re-assemble the machine.
   NOTE: 1) Be sure to connect the connectors after installing the development unit in the machine.
   2) Tilt the toner hopper so that there is toner near the toner hopper sensor.

9. Turn on the main switch, then do developer initial setting (SP mode No. 2-801).
   NOTE: 1) Do not make any copies with the new developer before completing the developer initial setting, otherwise toner density control will be abnormal.
   2) If the developer initial setting did not complete correctly, you cannot exit the SP mode by pressing the “Quit” key. If this problem occurs, turn the main switch off and on, then perform the initial setting again. If the result is the same, see “SC342” in the troubleshooting section.

6.6.3 DEVELOPMENT AND AIR DUST FILTER REPLACEMENT

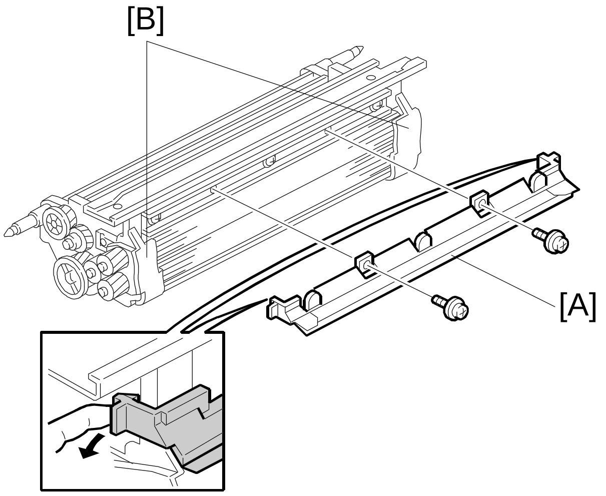


A294R301.WMF

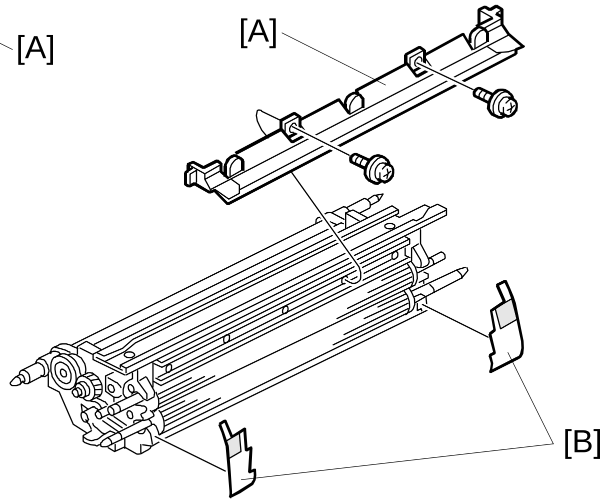
1. Take out the development unit. (Refer to Development Unit Removal.)
2. Remove the toner hopper. (Refer to Developer Replacement.)
3. Replace the development filter [A].
4. Remove the central air dust filter cover [B] (1 hook).
5. Replace the central air dust filter [C].
6. Remove the front air dust filter cover [D].
7. Replace the front air dust filter [E].

NOTE: Make sure that the air dust filter cover [B] is fully installed.

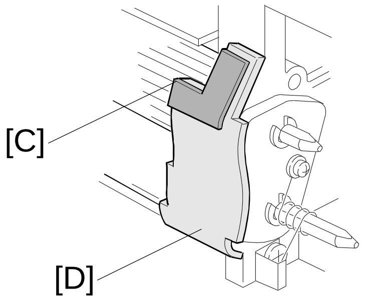
6.6.4 DEVELOPMENT ENTRANCE, FRONT, AND REAR SIDE SEALS



A294R545.WMF



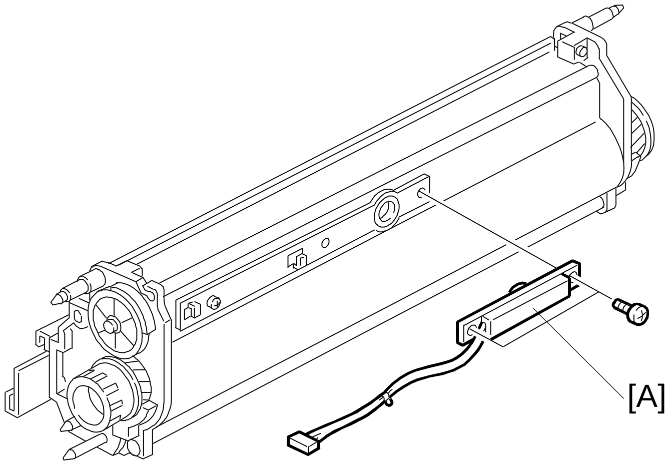
A294R571.WMF



A294R546.WMF

1. Remove the developer. (Refer to Developer Replacement.)
2. Replace the developer entrance seal [A] (2 screws, 2 hooks).
3. Replace the front and rear side seals [B].
   NOTE: When re-assembling the development unit, use new side seals and align the edges of the side seals with the corner [C] and the edge [D] as shown.
   There is no need to change the developer with this procedure.

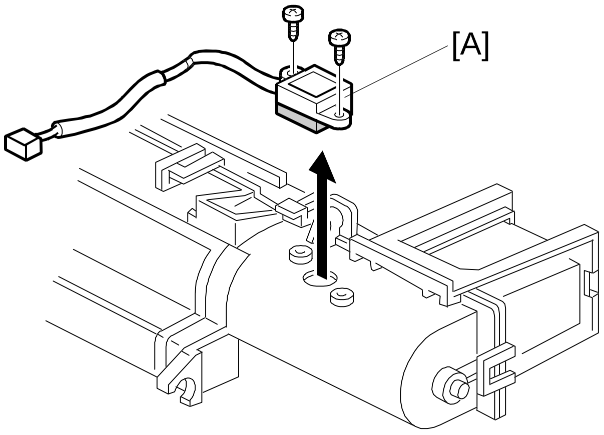
6.6.5 TONER DENSITY SENSOR REPLACEMENT



A294R547.WMF

1. Remove the developer. (Refer to Developer Replacement.)
2. Replace the TD sensor [A] (2 screws).
   NOTE: Before installing the TD sensor, clean the development unit well so that no carrier particles remain in the gap between the TD sensor and the development unit casing.
3. Install new developer and reassemble the development unit.
4. Perform the developer initial setting (SP2-801) then process control initialization (SP2-962).
   NOTE: Do not make any copies before completing the developer initial setting (SP2-801).

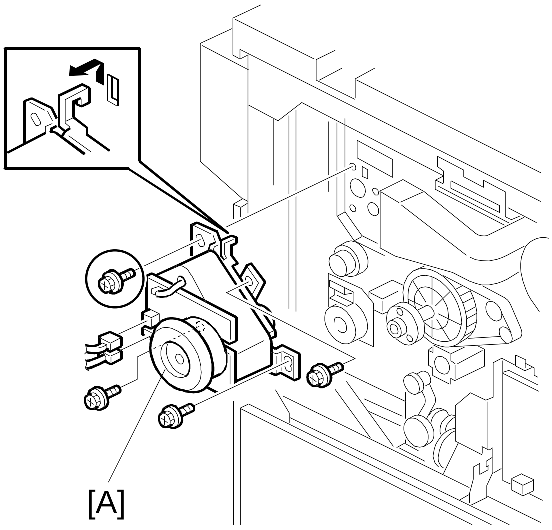
6.6.6 TONER HOPPER SENSOR REPLACEMENT



A294R303.WMF

1. Take out the toner hopper. (Refer to Developer Replacement.)
2. Replace the toner hopper sensor [A] (2 screws, 1 connector).

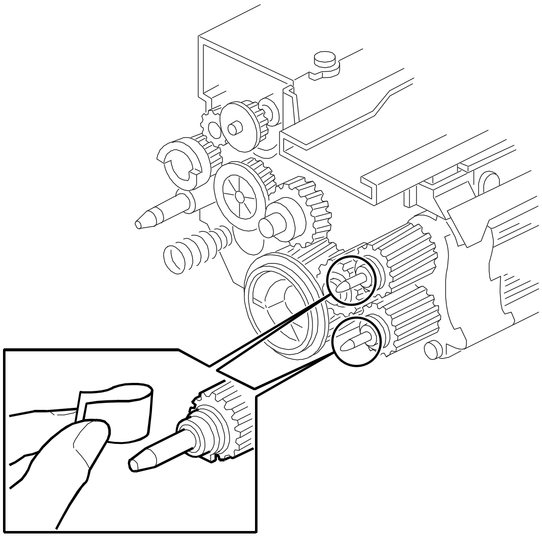
6.6.7 DEVELOPMENT MOTOR REPLACEMENT



A294R919.WMF

1. Turn off the main switch.
2. Remove the rear covers. (Refer to Exterior Cover Removal.)
3. Remove the fly wheel (3 screws).
4. Replace the development motor unit [A] (4 screws, 2 connectors, and 1 hook).

6.6.8 DEVELOPMENT ROLLER SHAFT CLEANING

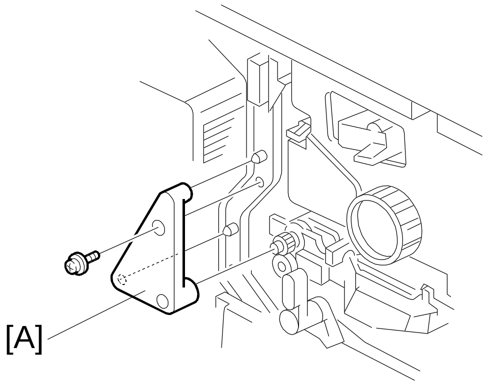


A294R405.WMF

1. Take out the development unit. (Refer to Development Unit Replacement.)
2. Remove toner and developer from the development roller shafts with teflon tape.

6.7 TRANSFER BELT UNIT

6.7.1 TRANSFER BELT UNIT REMOVAL/INSTALLATION



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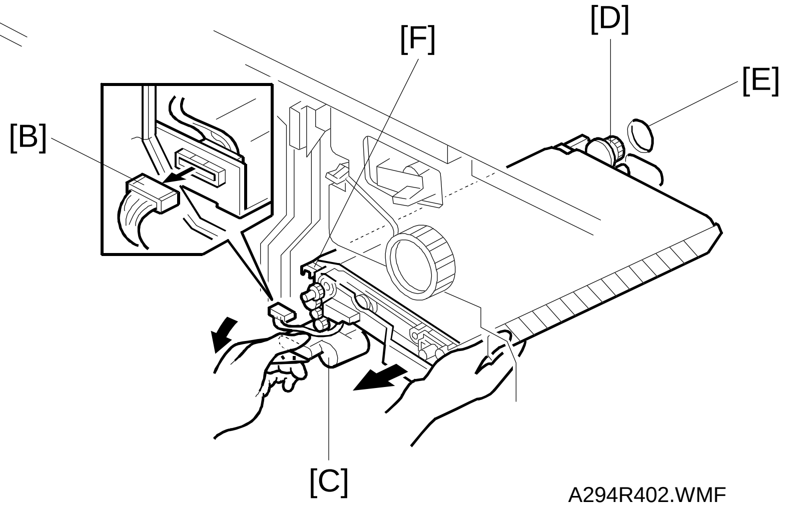


A294R402.WMF

Removal

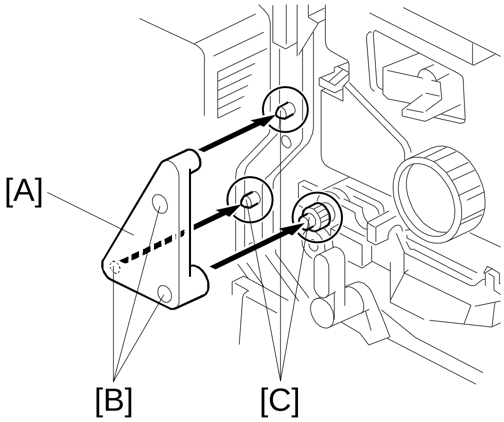
1. Turn off the main switch.
2. Remove the right inner cover (see Development Unit Removal).
3. Remove the transfer belt unit holder [A] (1 screw).
4. Disconnect the connector [B].
5. While turning the lever [C] counterclockwise, take out the transfer belt unit.

NOTE: 1) Do not touch the transfer belt with bare hands.
2) Take care not to scratch the drum with the transfer belt unit. Be careful when installing the transfer belt unit.

Reassembly

1. While keeping the lever [C] rotated fully counterclockwise, install the transfer belt unit.

NOTE: 1) Insert the gear [D] into the opening [E] in the rear frame.
2) Place the slot [F] in the transfer belt unit on the rail.



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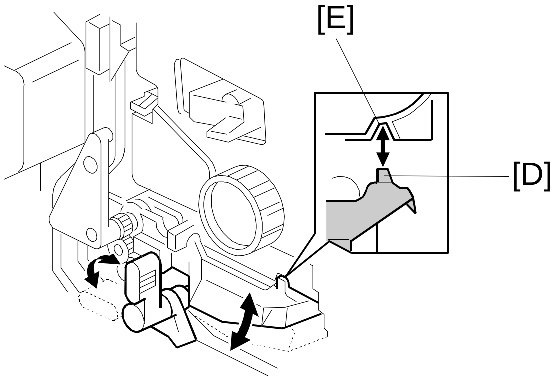
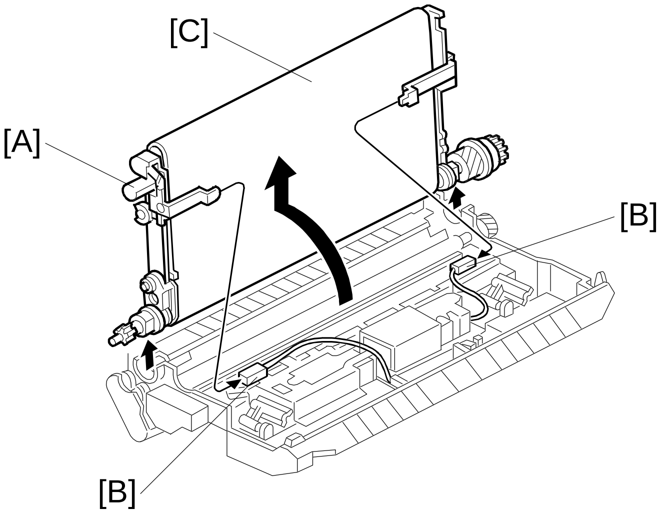


A294R404.WMF

2. Attach the transfer belt unit holder [A] (1 screw).
   NOTE: Align the three holes [B] with the three projections [C].
3. After installation, check the following points:
   1) The transfer belt unit must move up and down smoothly
   2) Part [D] of the transfer belt unit must be behind the drum stay,
   3) Part [D] of the transfer belt unit must be set in the indent [E] in the drum unit casing.

6.7.2 TRANSFER BELT REPLACEMENT



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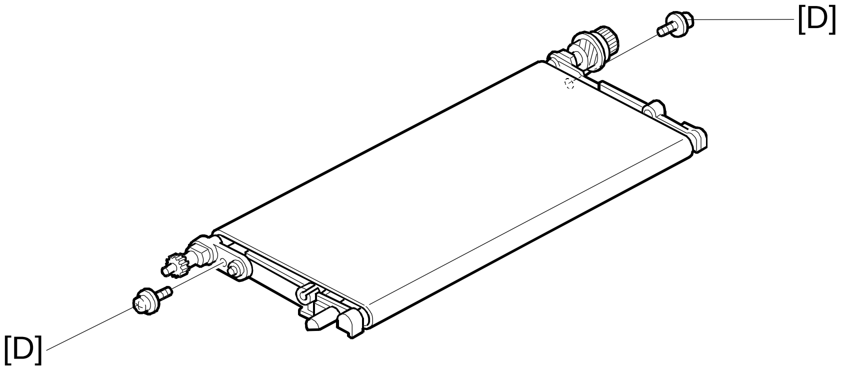
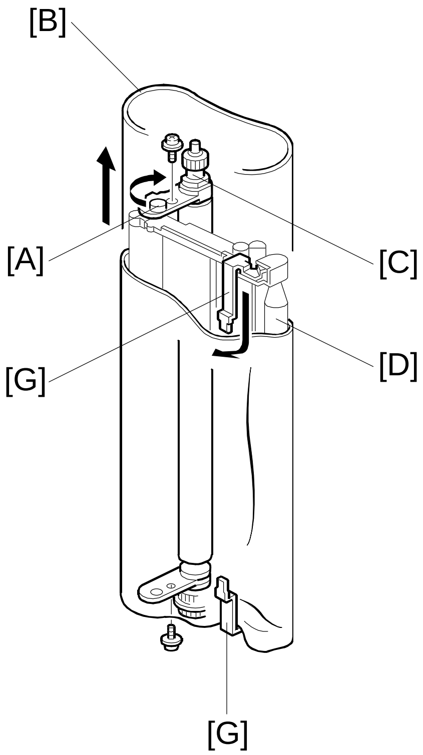
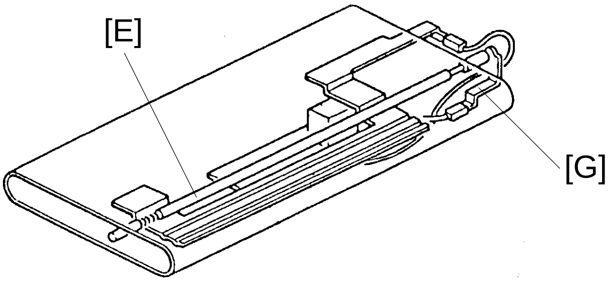


A294R522.WMF

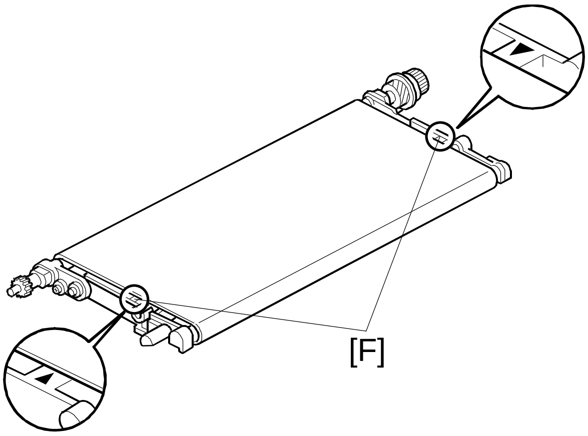
1. Take out the transfer belt unit. (Refer to Transfer Belt Unit Removal.)
2. While raising the knob [A], disconnect the two connectors [B].
3. Turn the transfer belt upper unit [C] 90 degrees counterclockwise, then raise and remove it.
4. Remove the screws [D].



A294R556.WMF



A294R523.PCX



A294R524.WMF

5. Turn the belt drive roller holder [A] clockwise (front view).
6. Replace the transfer belt [B].

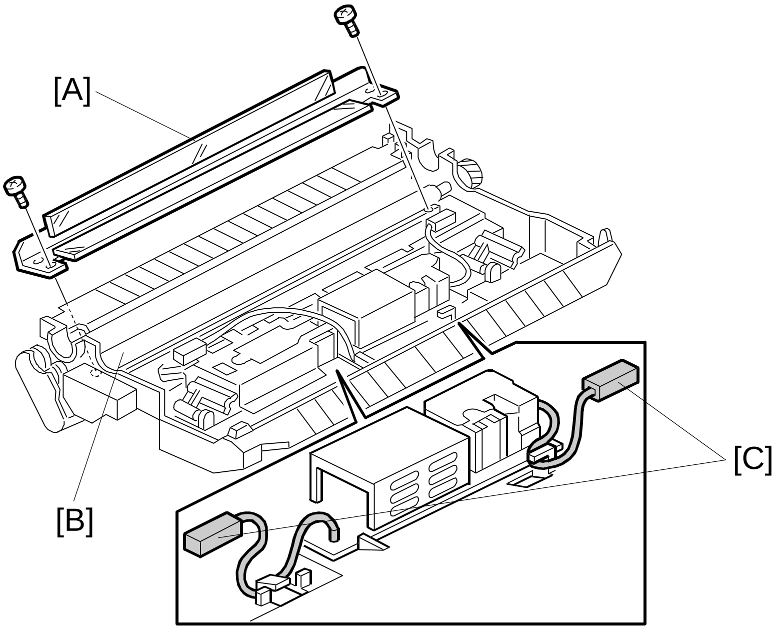
   NOTE: 1) Before installing the transfer belt, clean both sides of the transfer belt with a dry cloth (do not use alcohol).

   2) Before installing the transfer belt, clean the following items with alcohol.
      - Belt drive roller [C]
      - Belt roller [D]
      - Bias roller [E]

   3) Position the transfer belt at the center of the belt roller [D]. (Both marks [F] should be visible.)

   4) Set the transfer belt under the bias terminals [G] (see the previous page).

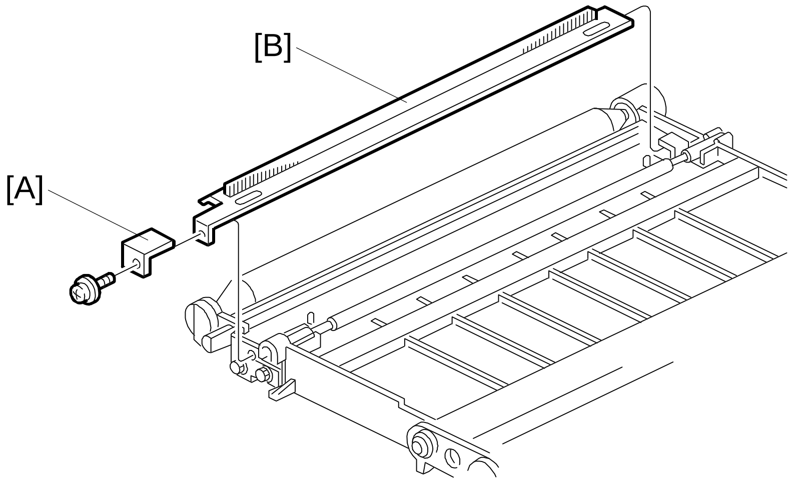
6.7.3 TRANSFER BELT CLEANING BLADE REPLACEMTNT



A294R108.WMF

1. Remove the transfer belt unit. (Refer to Transfer Belt Replacement.)
2. Remove the transfer belt cleaning blade [A].
3. Clean the cleaning bias roller [B].
   NOTE: When using a vacuum cleaner, to protect the transfer power pack from static electricity, remove the power pack connectors [C].
4. Install the new cleaning blade.
   NOTE: Do not touch the edge of the cleaning blade. If some of the setting powder on the blade edge is removed, apply setting powder or toner at that place.

6.7.4 TRANSFER BELT BIAS BRUSH REPLACEMENT



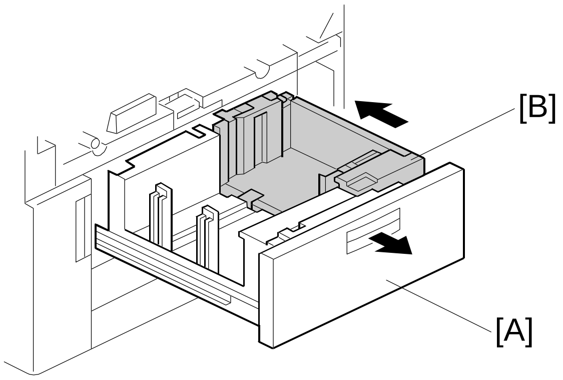
A294R455.WMF

1. Remove the transfer belt.
2. Remove the transfer belt bias brush holder [A] (1 screw).
3. Replace the transfer belt bias brush [B].

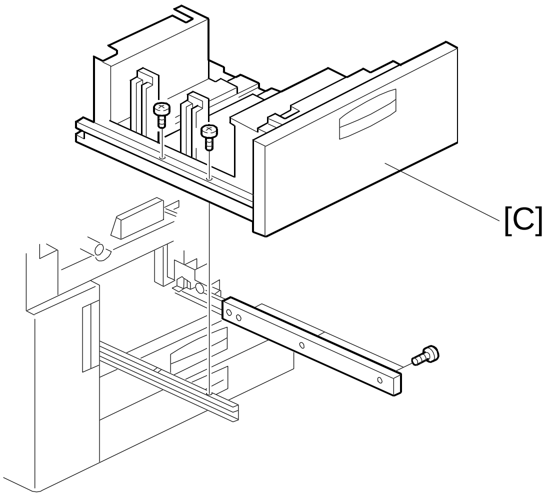
6.8 PAPER FEED

6.8.1 PAPER TRAY REMOVAL

Tandem Tray Removal

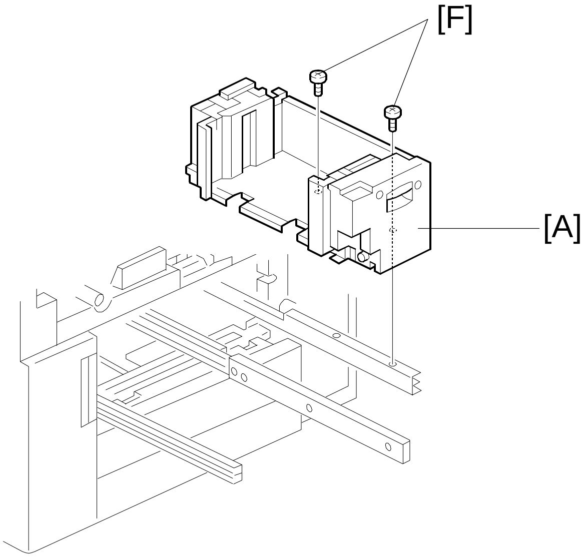


A294R707.WMF



A294R708.WMF

1. Open the front cover.
2. Draw out the tandem feed tray [A] so that the right tandem tray [B] fully separates from the left one.
3. Push in the right tandem tray.
4. Remove the left tandem tray [C] (5 screws).



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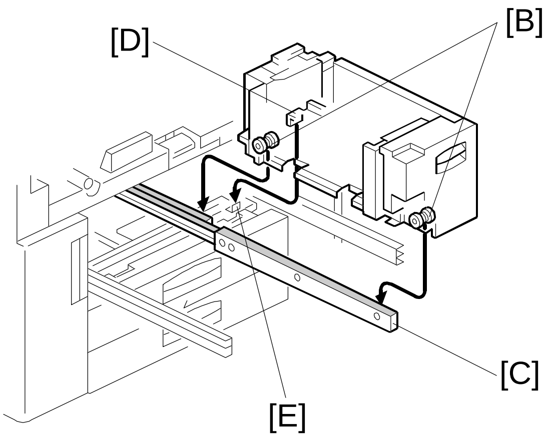


A294R710.WMF

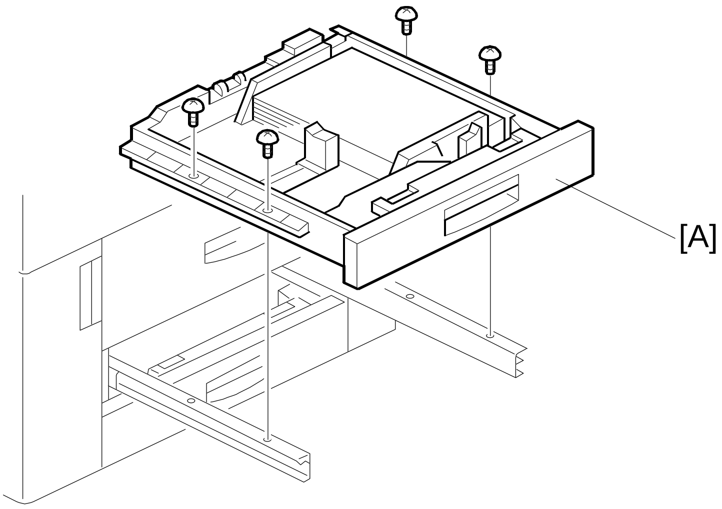
5. Remove the right tandem tray [A] (2 screws).

NOTE: 1) When re-installing the right tandem tray, make sure that the wheels [B] ride on the slide rail [C].

2) When re-installing the right tandem tray, make sure that the tandem tray stopper [D] is set behind the stopper [E] on the copier frame.

3) Use M4 x 4 screws [F] for securing the right tandem tray. Screws longer than 4 mm will prevent the right tandem tray from sliding out and in smoothly.

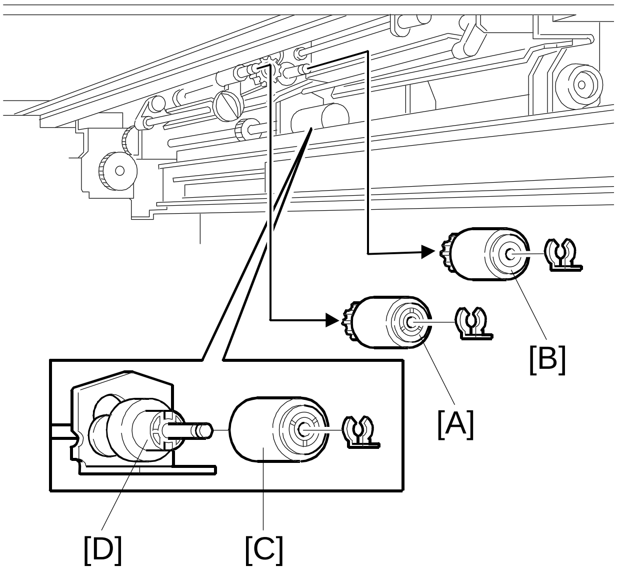
Universal Tray Removal



A294R711.WMF

1. Draw out the tray.
2. Remove the tray [A] from both guide rails, as shown (4 screws).

6.8.2 PAPER FEED ROLLER REPLACEMENT



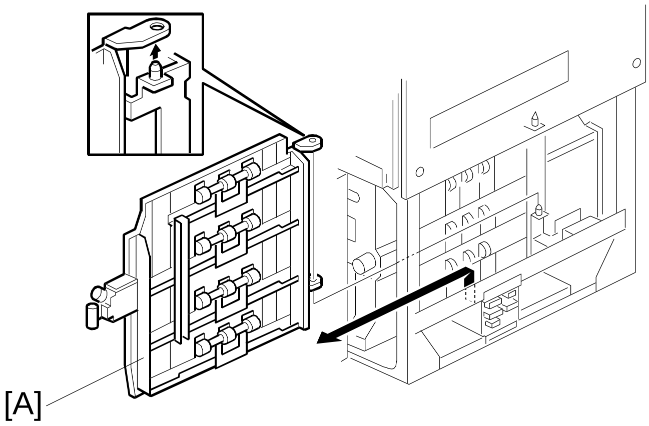
A294R804.WMF

1. Turn off the main switch.
2. Remove the paper tray for the appropriate feed unit. (Refer to Paper Tray Removal.)
3. Remove the pick-up roller [A] (1 snap ring).
4. Remove the feed roller [B] (1 snap ring).
5. Remove the separation roller [C] from the torque limiter [D] (1 snap ring).

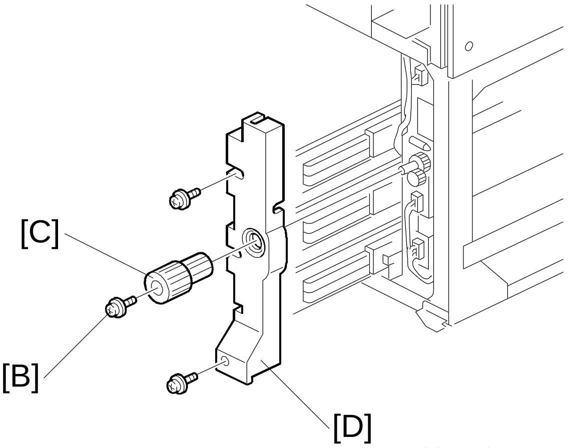
NOTE: 1) The paper feed rollers (pick-up, feed, separation) used in the 1st ~ 3rd feed units in the paper tray unit are different from the rollers used in the LCT. They are not interchangeable.
2) Do not touch the surface of the rollers with your bare hands.

Note that there are counters for these rollers that you may wish to reset after installing a new roller (SP 7-816).

6.8.3 PAPER FEED AND VERTICAL TRANSPORT CLUTCH, AND TRAY LIFT, PAPER FEED, AND PAPER END SENSOR REMOVAL



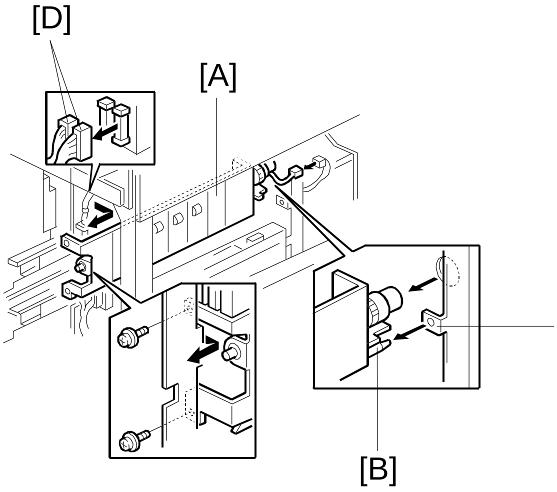
A294R702.WMF



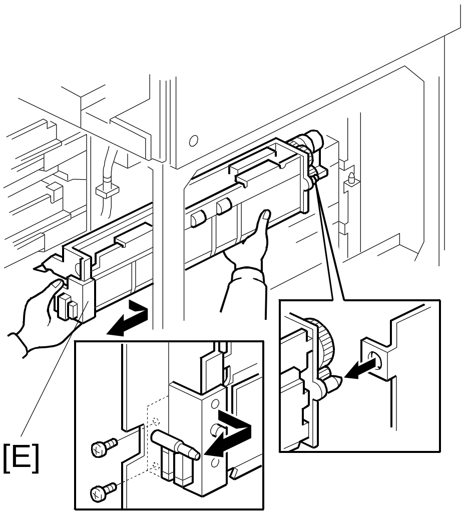
A294R701.WMF

This procedure is described for the 1st feed unit as an example.

1. Turn off the main switch.
2. Remove the right front door.
3. Remove the lower right cover. (Refer to Lower Right Cover Removal.)
   NOTE: If the LCT is installed, remove it from the copier.
4. Remove the feed unit cover. (Refer to Feed Unit Cover Removal.)
5. Slightly lift the vertical transport guide [A] and remove it.
6. Remove the securing screw [B], then remove the knob [C].
7. Pull out the paper trays, then remove the paper tray unit inner cover [D] (2 screws).

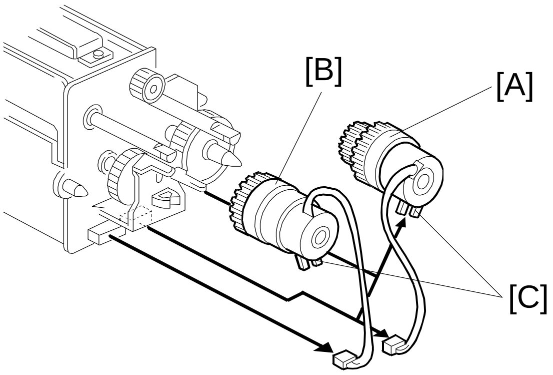


A294R703.WMF

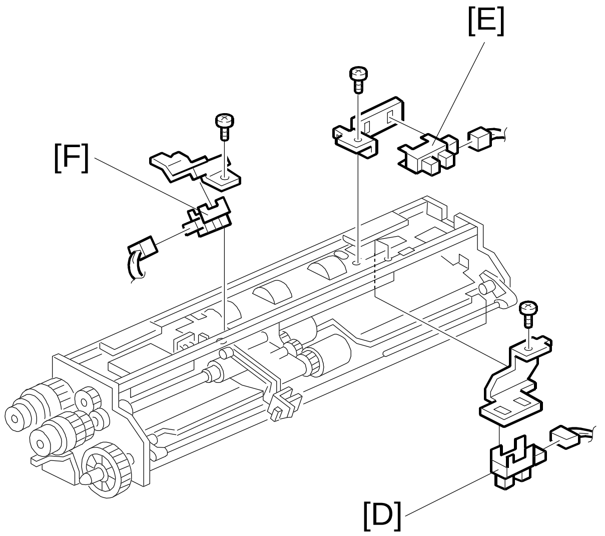


A294R704.WMF

8. Hold the inner vertical transport guide [A] and pull it out (2 screws, 1 connector).
   NOTE: When re-installing the inner vertical transport guide, make sure to set the pin [B] of the inner vertical transport guide into the slot [C] on the main body.
9. Disconnect the two connectors [D].
10. Grasp the 1st or 2nd paper feed unit [E] and pull it out (2 screws).
    NOTE: Before removing the 1st or 2nd paper feed unit, remove the inner vertical transport guide [A]. Otherwise, the 1st or 2nd paper feed unit may be damaged.



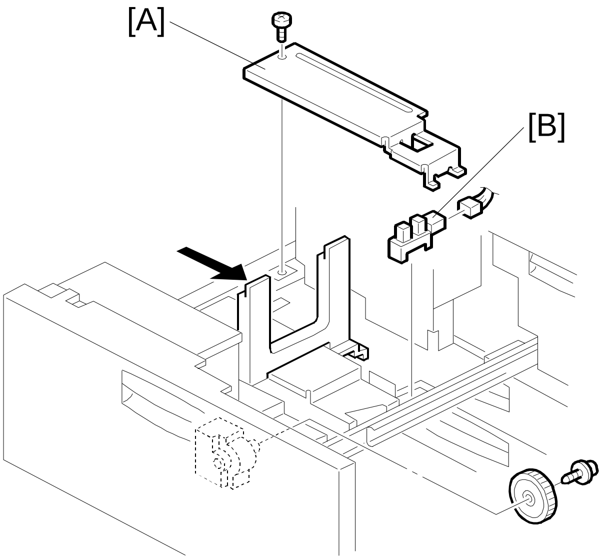
A294R706.WMF



A294R705.WMF

11. Remove the paper feed clutch [A] (1 hook, 1 connector).
12. Remove the vertical transport clutch [B] (1 hook, 1 connector).
13. When re-installing the clutches, put the stopper [C] of each clutch on the correct hook on the bracket.
14. Remove the paper feed [D], paper end [E], or tray lift sensor [F] as required (1 bracket, 1 screw, and 1 connector for each sensor).

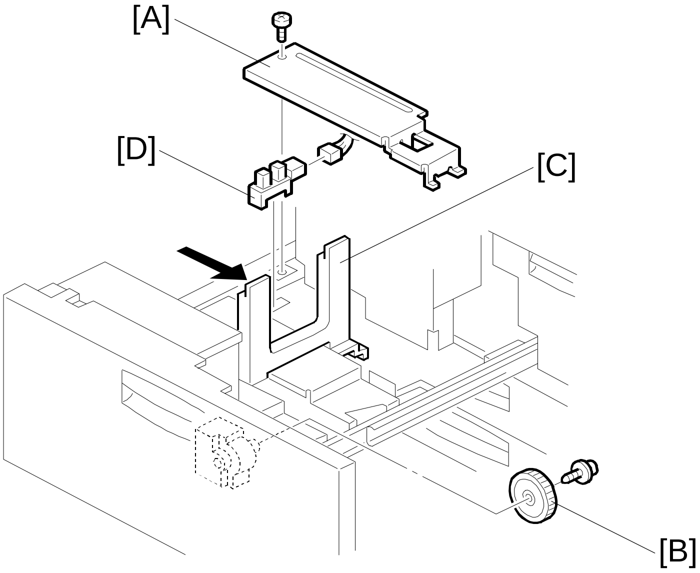
6.8.4 REAR FENCE RETURN SENSOR REPLACEMENT



A294R525.WMF

1. Turn off the main switch.
2. Draw out the tandem feed tray.
3. Remove the rear bottom plate [A] (1 screw).
4. Replace the rear fence return sensor [B] (1 connector).

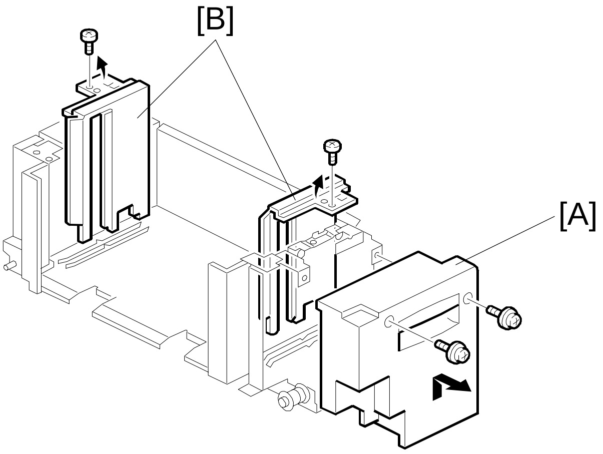
6.8.5 REAR FENCE HP SENSOR REPLACEMENT



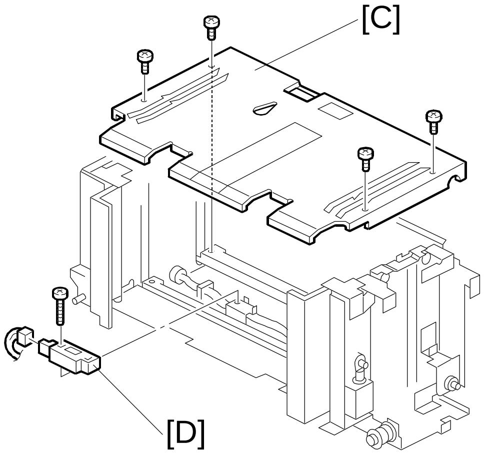
A294R002.WMF

1. Turn off the main switch.
2. Draw out the tandem feed tray.
3. Remove the rear bottom plate [A] (1 screw).
4. Remove the rear fence transport gear [B] (1 screw).
5. Move the rear fence [C] to the right.
6. Remove the rear fence HP sensor [D] (1 connector).

6.8.6 RIGHT 1ST TRAY PAPER SENSOR REPLACMENT



A294R543.WMF



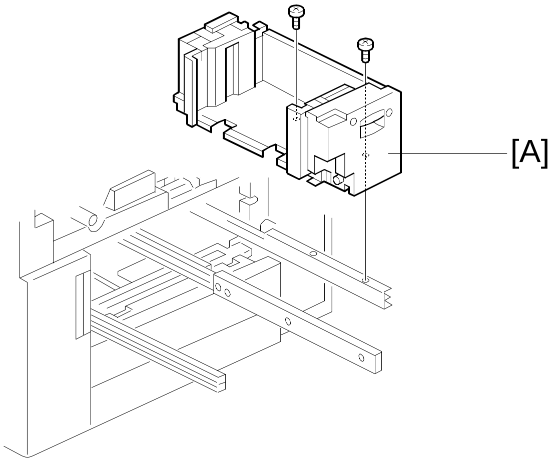
A294R526.WMF

1. Turn off the main switch.
2. Remove the right tandem tray. (Refer to Paper Tray Removal.)
3. Remove the inner cover [A] (2 screws).
4. Remove the side fences [B] (1 screw each).
   NOTE: When putting back the side fences, make sure that the position of the side fences is correct.

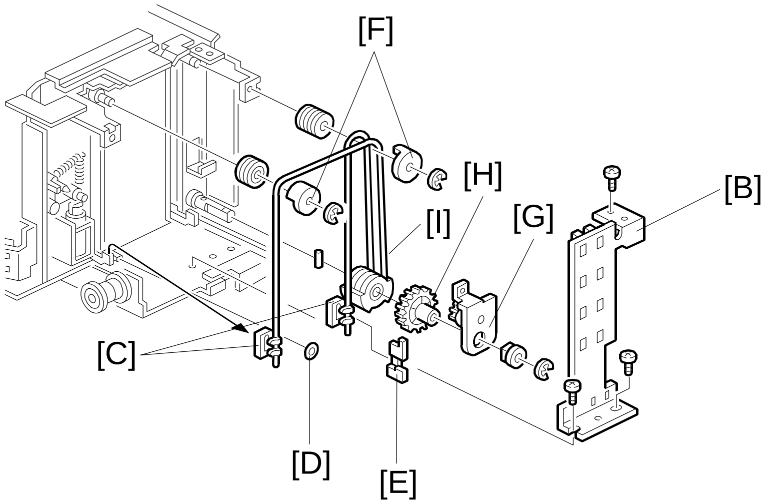
   A4: Outer
   LT: Inner
5. Remove the bottom plate [C] (4 screws).
6. Replace the right 1st tray paper sensor [D] (1 screw and 1 connector).

6.8.7 BOTTOM PLATE LIFT WIRE REPLACEMENT

NOTE: Before replacing the rear bottom plate lift wire, remove the front bottom plate lift wire. The procedure for the two wires is the same.

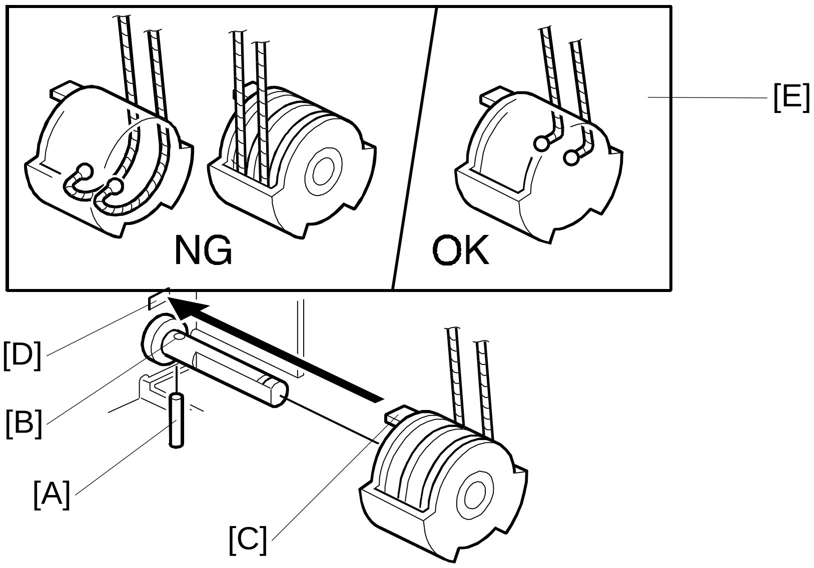


A294R709.WMF



A294R712.WMF

1. Remove the right tandem tray [A]. (Refer to Paper Tray Removal.)
2. Remove the inner cover (2 screws). (See Right 1st Tray Paper Sensor Removal.)
3. Remove the sensor bracket [B] (3 screws).
4. Slightly lift the front bottom plate and unhook the wire stoppers [C] (1 stopper [D] and 1 actuator [E]).
5. Remove the wire covers [F] (1 E-ring each).
6. Remove the bracket [G] (1 screw, 1 E-ring, and 1 bushing).
7. Remove the gear [H].
8. Replace the bottom plate lift wire [I].

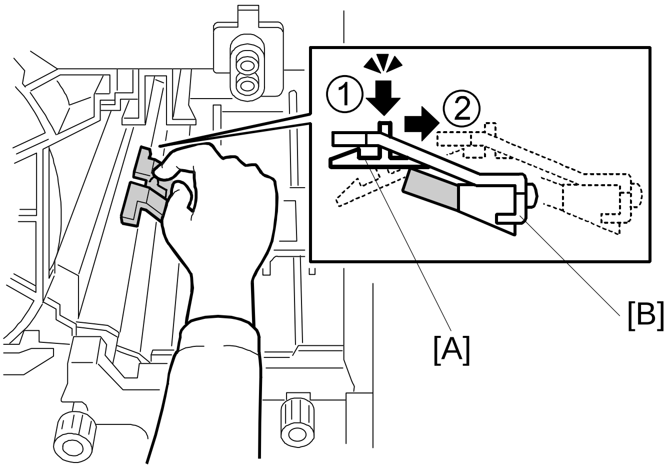


A294R061.WMF

NOTE: When re-installing the bottom plate lift wire:

1) Set the positioning pin [A] in the hole [B] and set the projection [C] in the hole [D].
2) Position the wire as shown [E].
3) Do not cross the wires.

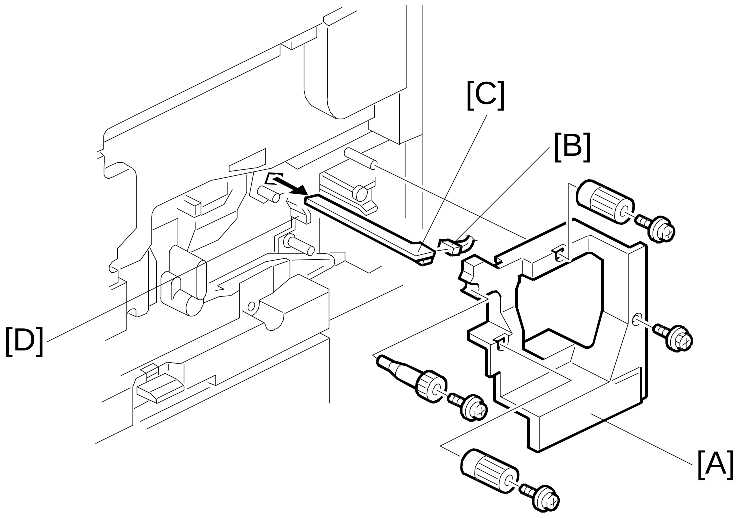
6.8.8 PAPER DUST REMOVER CLEANING



A294R936.WMF

1. Remove the development unit. (Refer to Development Unit Removal.)
2. While pushing down the hook lever [A], remove the paper dust remover [B].
3. Remove the paper dust inside the paper dust remover and clean inside it with a dry cloth or a blower-brush.

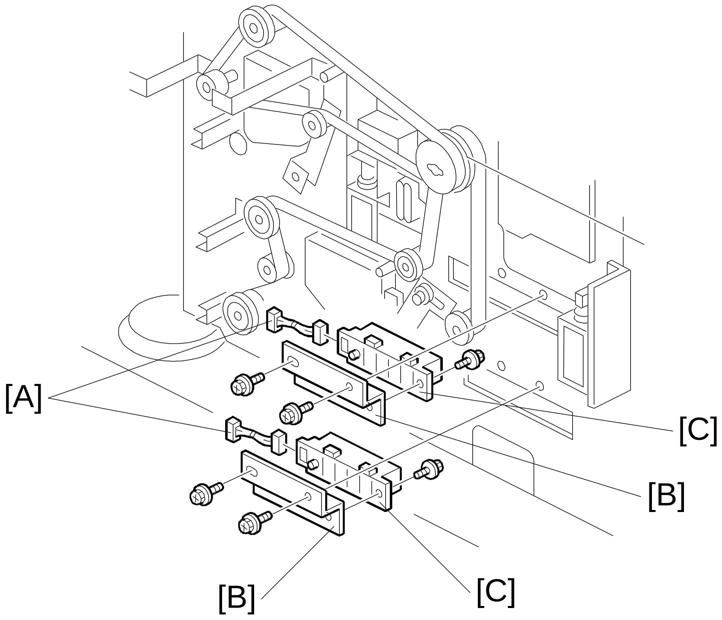
6.8.9 REGISTRATION SENSOR CLEANING



A294R937.WMF

1. Remove the lower right inner cover [A] (4 screws, 3 knobs).
2. Disconnect the connector [B].
3. Pull out the registration sensor assembly [C].
4. Clean the photo sensor [D] with a blower-brush.

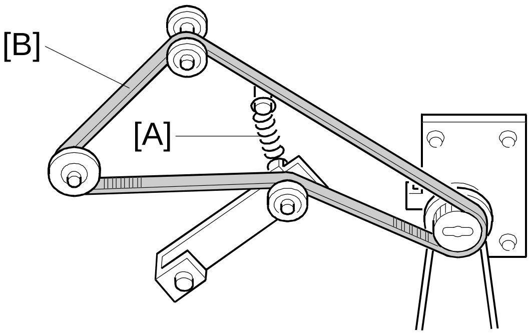
6.8.10 UNIVERSAL TRAY SIZE SWITCH REPLACEMENT



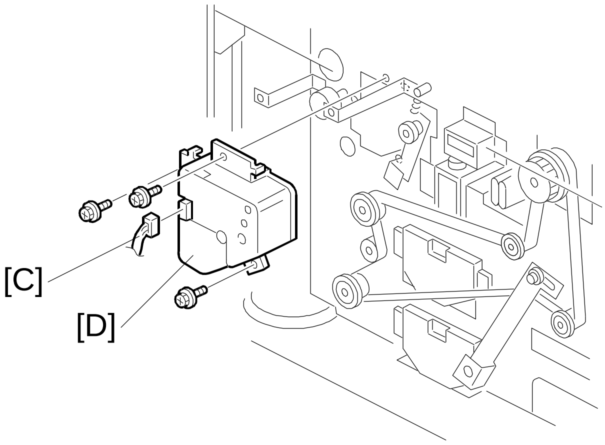
A294R932.WMF

1. Turn off the main switch.
2. Remove the lower rear cover. (See Exterior.)
3. Remove the PSU (5 screws, all connectors). See Boards and Other Items.
4. Disconnect the connector [A].
5. Remove the tray size switch bracket [B] (2 screws).
6. Replace the universal tray size switch [C] (1 connector).

6.8.11 1ST TRAY LIFT MOTOR REMOVAL



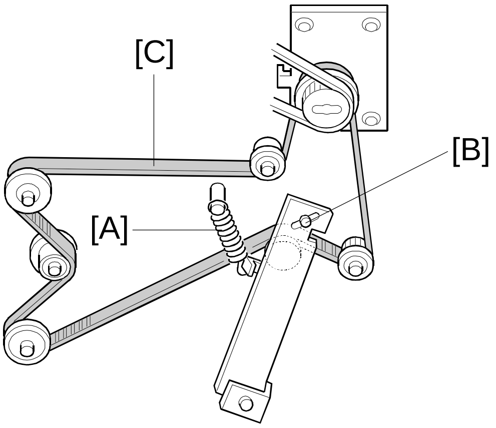
A294R929.WMF



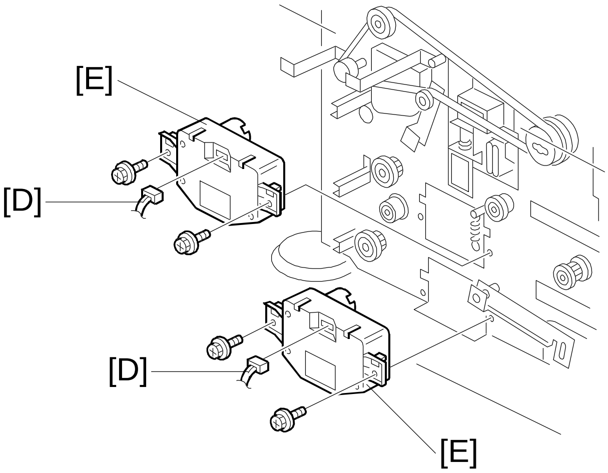
A294R926.WMF

1. Turn off the main switch.
2. Remove the lower rear cover. (See Exterior.)
3. Remove the PSU (5 screws, all connectors) and IOB board (4 screws, all connectors). See Boards and Other Items.
4. Remove the tension spring [A].
5. Remove the upper timing belt [B].
6. Disconnect the connector [C].
7. Remove the 1st tray lift motor [D] (3 screws).

6.8.12 LIFT MOTOR REMOVAL (2ND & 3RD TRAYS)



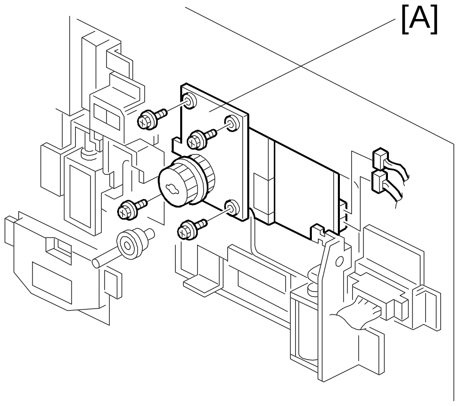
A294R930.WMF



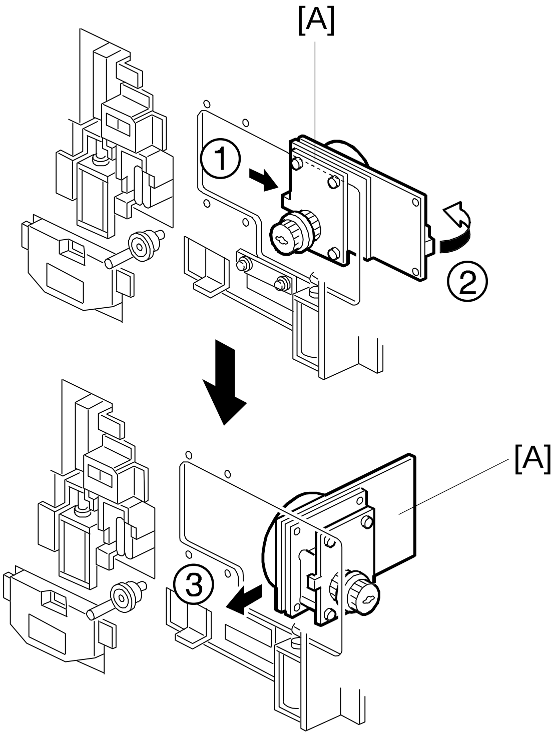
A294R931.WMF

1. Turn off the main switch.
2. Remove the lower rear cover. (See Exterior.)
3. Remove the PSU (5 screws, all connectors) and IOB board (4 screws, all connectors). See Boards and Other Items.
4. Remove the tension spring [A].
5. Remove the screw [B].
6. Remove the lower timing belt [C].
7. Disconnect the connectors [D].
8. Remove the lift motors [E] (2 screws each).

6.8.13 PAPER FEED MOTOR REMOVAL



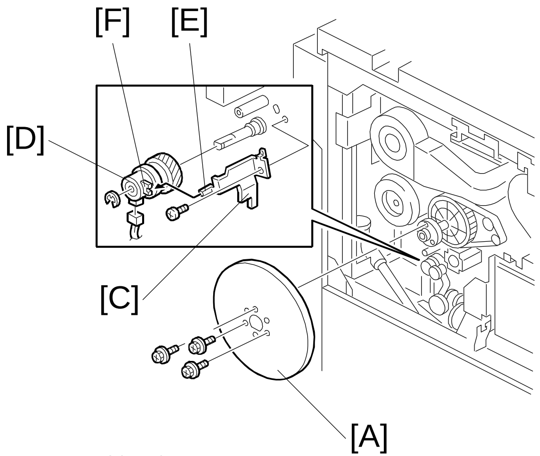
A294R933.WMF



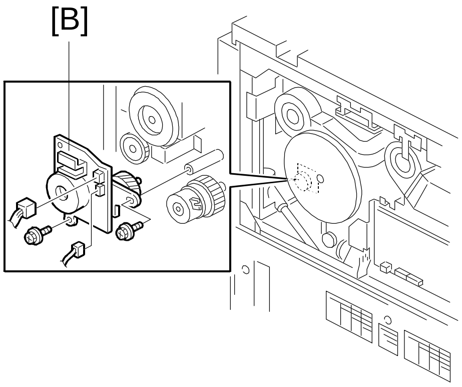
A294R934.WMF

1. Remove the upper and lower timing belts:
   Follow steps from 1 to 5 of 1st tray lift motor removal and from 1 to 6 of 2nd and 3rd lift motor removal.
2. Remove the paper feed motor [A], as shown above (4 screws, 2 connectors).

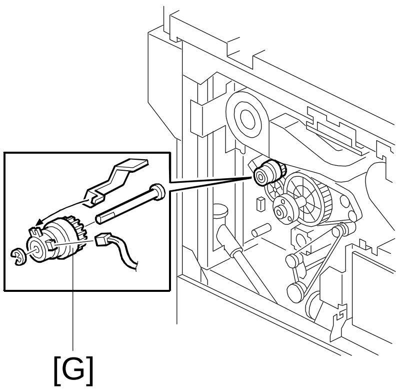
6.8.14 RELAY MOTOR, UPPER RELAY CLUTCH, LCT RELAY CLUTCH REMOVAL



A294R917.WMF



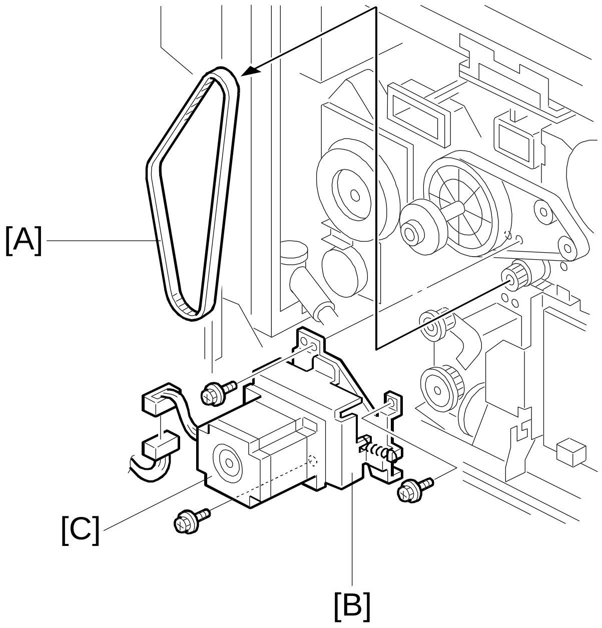
A294R916.WMF



A294R944.WMF

1. Remove the upper rear cover. (Refer to Upper Rear Cover Removal.)
2. Remove the fly wheel [A] (3 screws).
3. Remove the relay motor [B] (2 screws, 2 connectors).
4. Remove the clutch stopper [C] (1 screw).
5. Remove the relay clutch [D] (1 retaining ring, 1 connector).
   NOTE: When re-installing the clutch [D], put the pin [E] in the stopper in the cutout [F] in the clutch.
6. Remove the LCT relay clutch [G] (1 retaining ring, 1 connector).

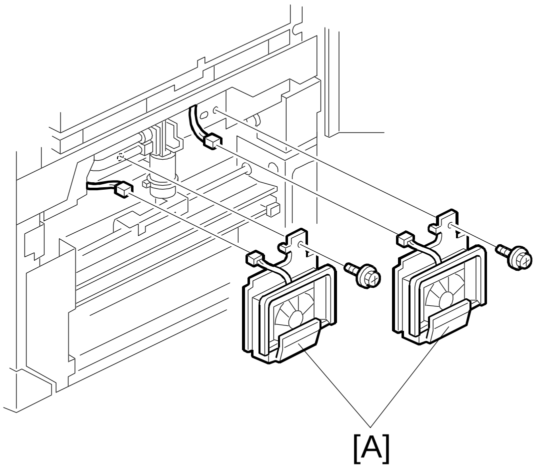
6.8.15 REGISTRATION MOTOR REMOVAL



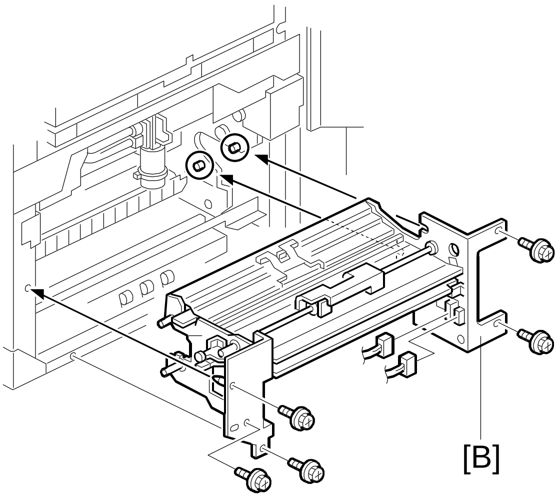
A294R922.WMF

1. Remove the upper rear cover. (Refer to Cover Removal.)
2. Remove the fly wheel (3 screws).
3. Remove the timing belt [A].
4. Remove the bracket [B] with the motor (3 screws, 1 connector).
5. Remove the registration motor [C] (3 screws, 1 timing belt, and 1 spring).

6.8.16 COPIER FEED UNIT/DEVELOPMENT FAN MOTOR REMOVAL



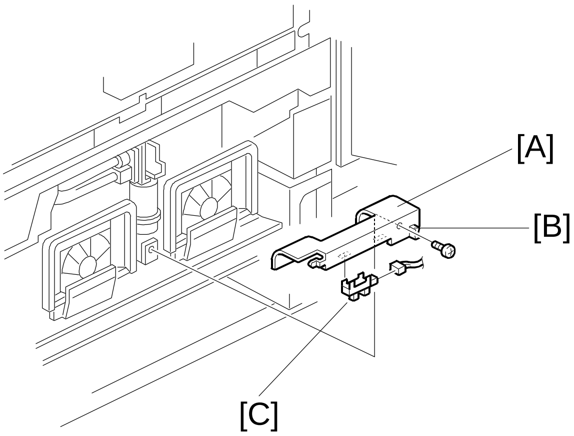
A294R939.WMF



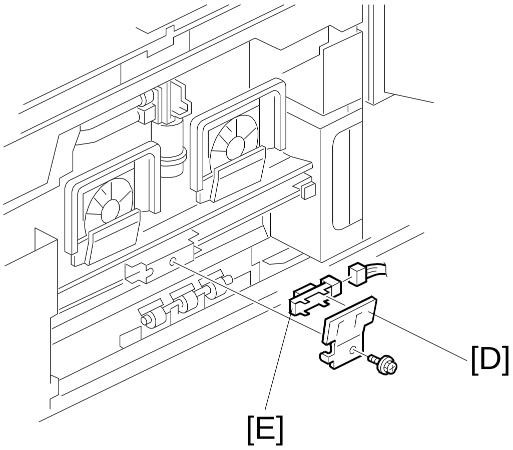
A294R940.WMF

1. Turn off the main switch.
2. Remove the development unit. (Refer to Development Unit Removal.)
3. Remove the lower right inner cover. (Refer to Registration Sensor Cleaning.)
4. Draw out the duplex unit about 10 cm.
5. Remove the LCT relay motor. (Refer to LCT Relay Motor Removal.)
6. Remove the upper right cover. (See Exterior.)
7. Remove the two fan motors [A] (1 screw, 1 connector each).
8. Remove the copier feed unit [B] (5 screws, 2 connectors).

6.8.17 LCT RELAY AND RELAY SENSOR REMOVAL



A294R935.WMF

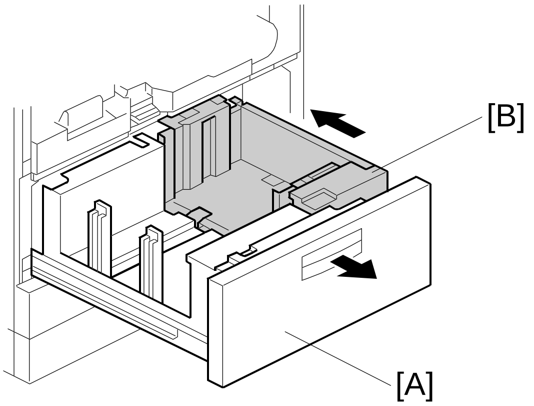


A294R938.WMF

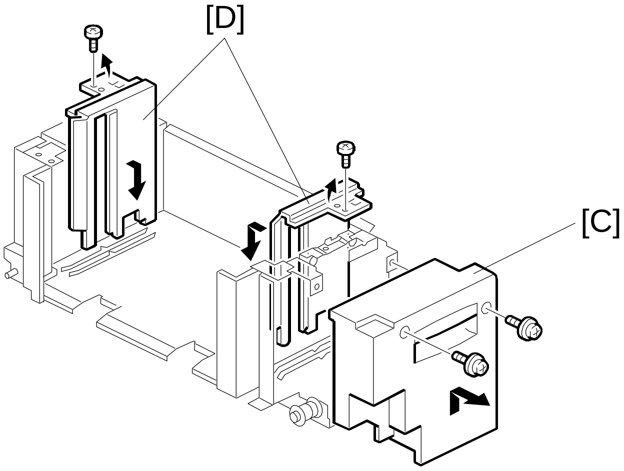
1. Remove the upper right cover. (See Exterior.)
2. Remove the bracket [A] with the LCT relay sensor (1 screw, 1 connector and 1 harness clamp [B]).
3. Remove the LCT relay sensor [C].
4. Remove the bracket [D] with the relay sensor (1 screw, 1 connector).
5. Remove the relay sensor [E].

6.8.18 TANDEM FEED TRAY PAPER SIZE CHANGE

NOTE: At the factory, this tray is set up for A4 or LT sideways. Only A4 or LT sideways paper can be used for tandem feed.

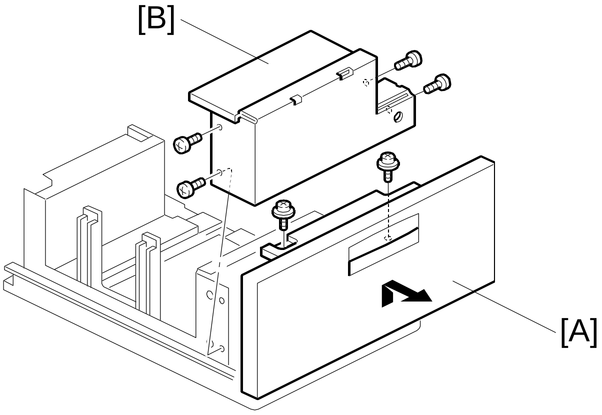


A294R564.WMF

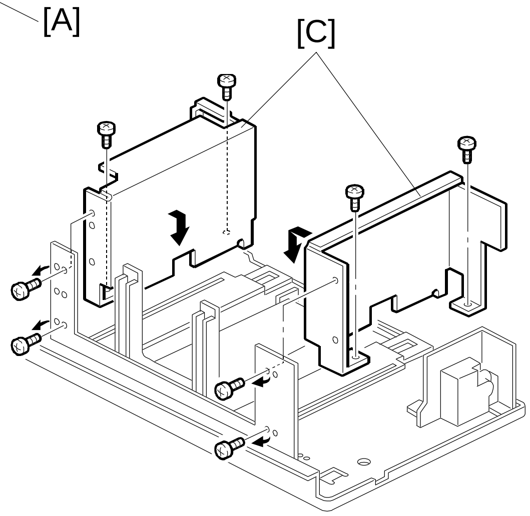


A294R565.WMF

1. Open the front cover.
2. Completely pull out the tandem feed tray [A] so that the right tandem tray [B] separates from the left tandem tray.
3. Remove the right tandem inner cover [C].
4. Re-position the side fences [D] (1 screw each). The outer slot position is used when loading A4 size paper.
5. Re-install the right tandem inner cover [C].

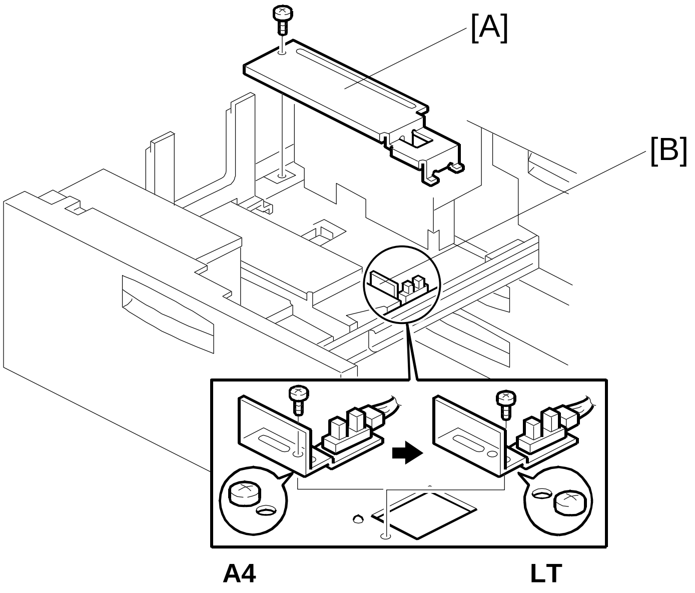


A294R566.WMF



A294R523.WMF

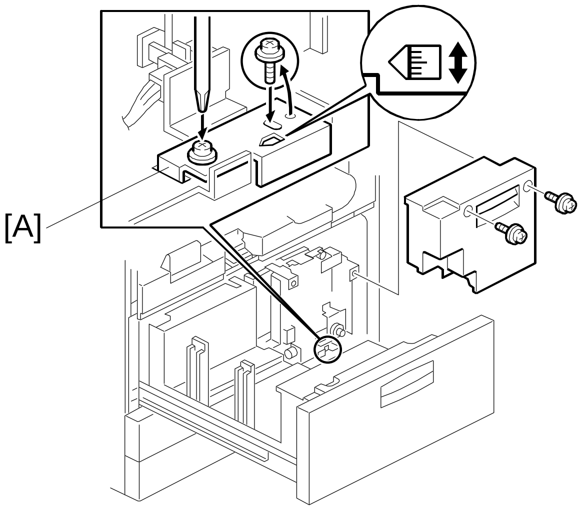
6. Remove the tray cover [A] (2 screws).
7. Remove the motor cover [B] (4 screws).
8. Re-position the side fences [C] (4 screws each). The outer slot position is used when loading A4 size paper.
9. Re-install the motor cover and the tray cover.



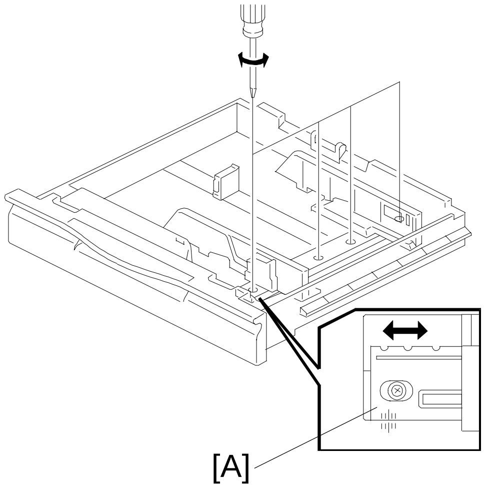
A294R024.WMF

10. Remove the rear bottom plate [A] (1 screw).
11. Re-position the return position sensor bracket [B] (1 screw). To use the paper tray for A4 size, put the screw in the left hole as shown. (For LT size, the screw should be placed on the right.)
12. Re-install the rear bottom plate.
13. Change the paper size using SP5-019-001.

6.8.19 MECHANICAL SIDE REGISTRATION ADJUSTMENT



A294R656.WMF



A294R613.WMF

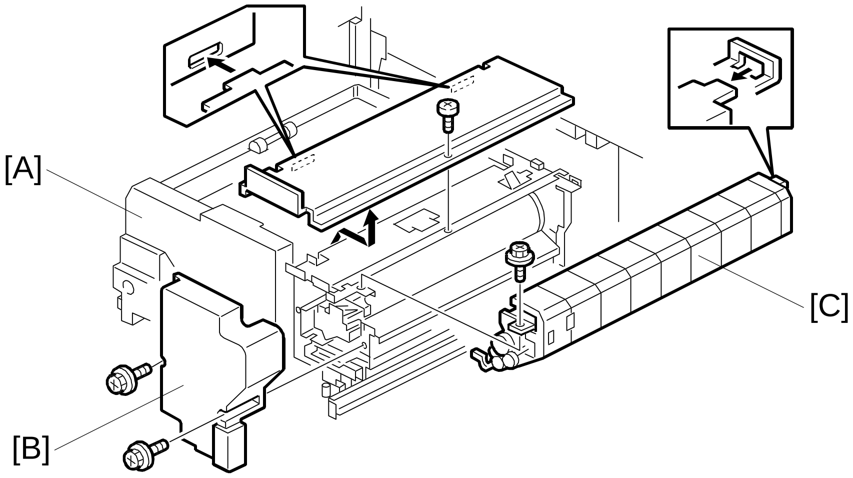
NOTE: Normally the side registration of the image can be adjusted with SP mode. When the punch hole positions are not aligned from a particular feed station, adjusted the side registration by changing the tray cover position for that tray, as described below. Then adjust the side registration of the image with the SP mode.

1. Pull out the tray.
2. Move the plate [A] as shown.

   Adjustment range: 0 ± 2.0 mm adjustment step: 1.0 mm/step

6.9 FUSING UNIT

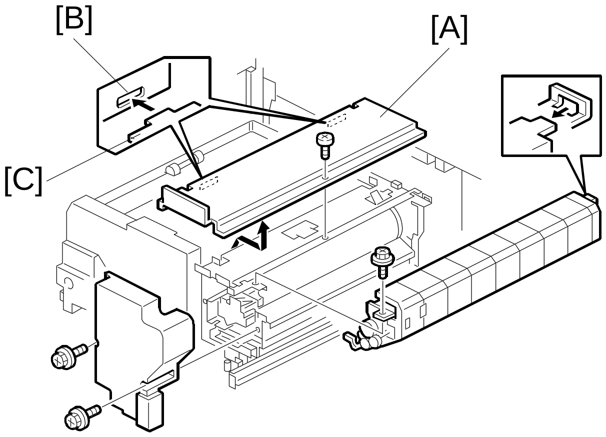
6.9.1 OIL SUPPLY & CLEANING WEB UNIT REMOVAL



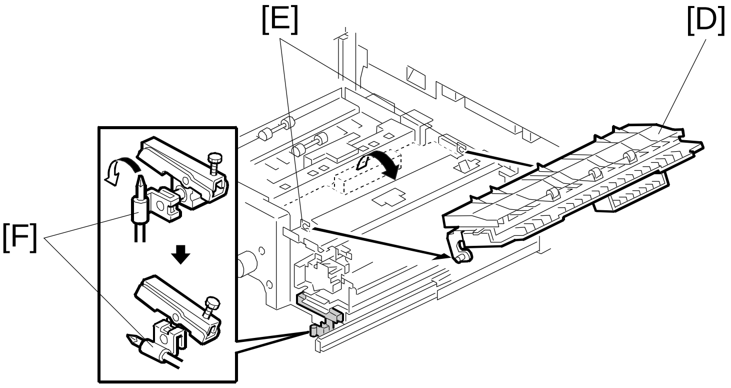
A294R501.WMF

1. Turn off the main switch.
2. Pull out the fusing and exit unit [A].
3. Remove the fusing unit inner cover [B] (2 screws).
   NOTE: The oil supply and cleaning web unit is still hot even if the main switch is turned off for servicing.
4. Remove the oil supply and cleaning web unit [C] (1 screw).
   NOTE: Make sure that the web collecting roller gear engages with the gears on the fusing/exit unit after re-installing the oil supply and cleaning web unit.

6.9.2 HOT ROLLER UNIT REMOVAL AND PRESSURE ROLLER REPLACEMENT

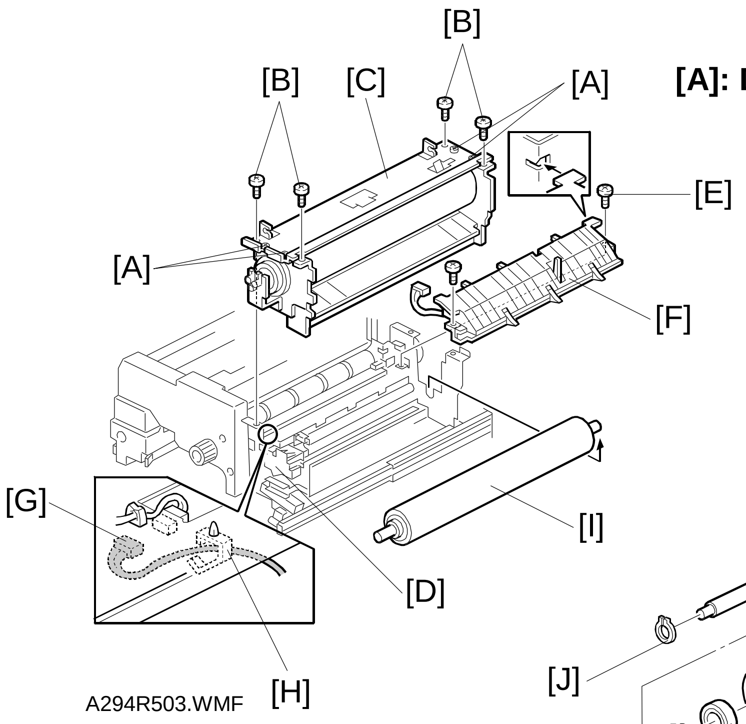


A294R501.WMF



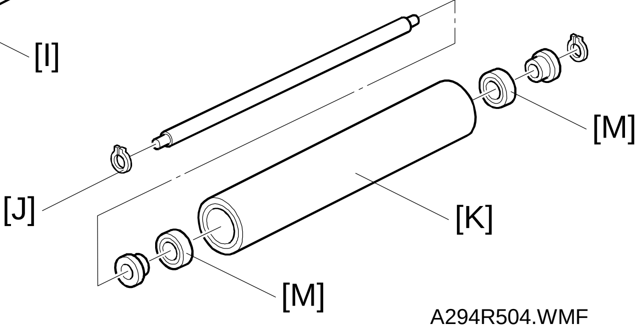
A294R502.WMF

1. Remove the oil supply and cleaning web unit. (See Oil Supply and Cleaning Web Unit Removal.)
2. Remove the top cover [A] of the fusing unit (1 screw).
   NOTE: When re-installing this cover, align the cutouts [B] and projections [C] and slide the cover to the right. Make sure that the cover does not pinch the thermistor and thermofuse cables against the stay.
3. Turn the hot roller stripper unit [D] clockwise approximately 160° and slide the pivot shaft out of the cutout [E].
4. Release the fusing pressure by turning the pressure lever [F] 1/4 of a turn counterclockwise with a screw driver.
   NOTE: If the fusing pressure is still released when re-installing the inner cover of the fusing unit, that cover cannot be installed.

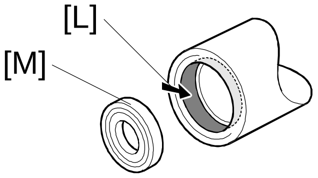


[A]: Do not remove these screws.

A294R503.WMF



A294R504.WMF



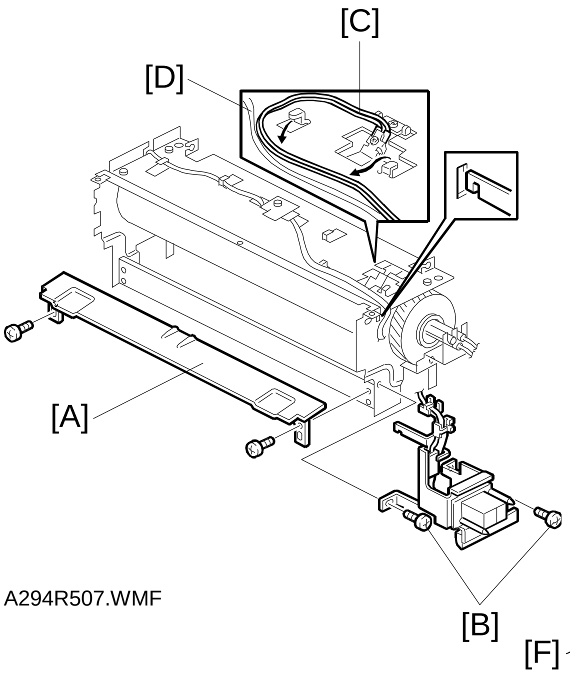
A294R022.WMF

NOTE: Do not remove the four **M4 bind screws** [A] in the next step.

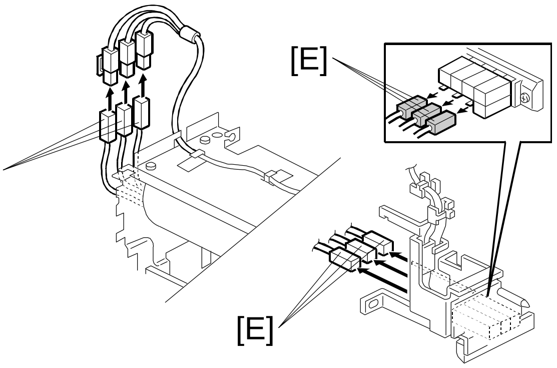
5. Remove the four **M5 pan head screws** [B] and remove the hot roller unit [C].
   NOTE: 1) When re-installing the hot roller unit, make sure that the flanges of the ball bearings in the hot roller unit are set inside the fusing exit side plate [D] and the gear in the hot roller unit is installed on the rear side.
   2) Secure the M5 pan head screws at the rear side first. Then, secure the screws at the front side.
6. Remove the two bind screws [E] securing the pressure roller stripper unit [F].
7. Slide the pressure roller stripper unit [F] to the right while slightly raising the side near the pressure roller (1 connector [G] and 1 clamp [H]).
   NOTE: Be careful not to touch the pressure roller surface during this step.
8. Lift up the pressure roller unit [I].
9. Remove the C-ring [J] from the pressure roller and replace the pressure roller [K] (2 ball bearings, 2 bushings).

NOTE: Lubricate the inner surface [L] of the pressure roller (bearing [M] contact part) with BARRIERTA L55/2 grease when replacing the pressure roller.

6.9.3 HOT ROLLER REPLACEMENT

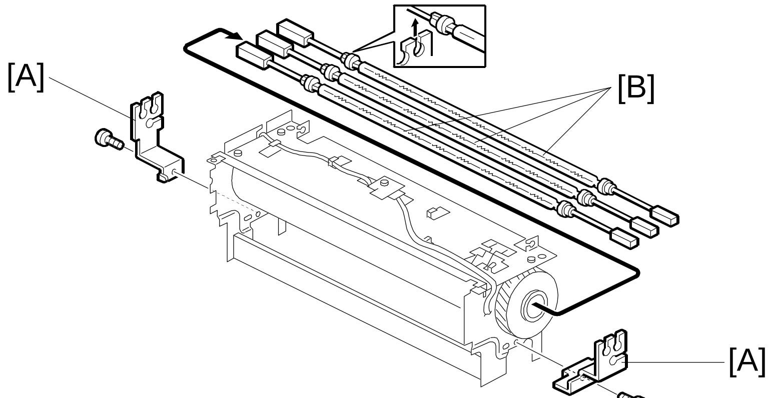


A294R507.WMF

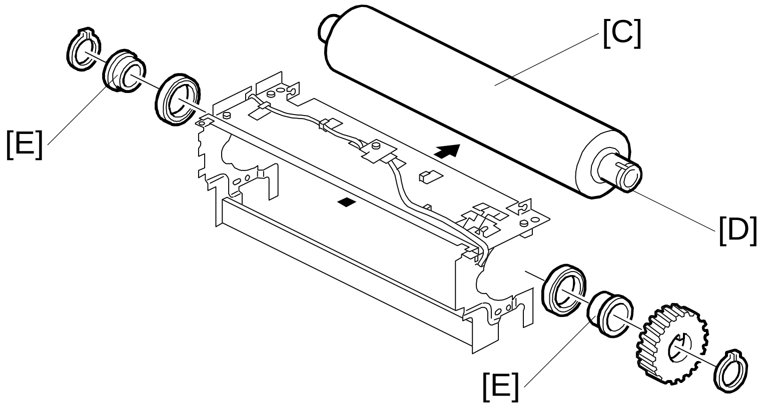


A294R508.WMF

1. Remove the hot roller unit:
   Follow steps 1 to 5 of hot roller unit removal and pressure roller replacement.
2. Remove the fusing entrance guide [A] (2 screws).
3. Remove the two screws [B] securing the harness terminal bracket, and unhook the bracket.
   NOTE: Unhook the thermistor cable [C] and themofuse cable [D] to prevent them from becoming damaged.
4. Disconnect the three green connectors [E] for the fusing lamp cables from the terminal on the rear side.
5. Disconnect the three white fusing lamp connectors [F] on the front side.



A294R509.WMF



A294R510.WMF

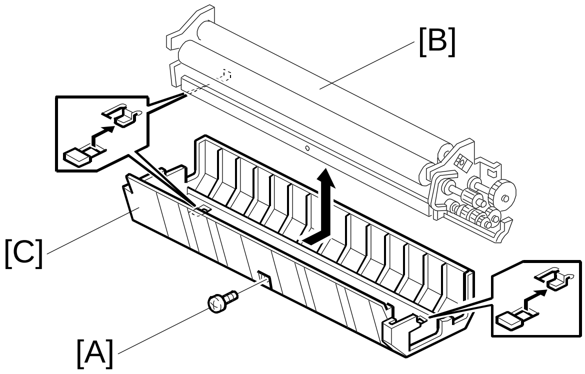
6. Remove the front and rear lamp holders [A] (1 screw each).
7. Remove the three fusing lamps [B] one-by-one.
8. Replace the hot roller [C] (1 gear, 2 C-rings, 2 bushings, and 2 ball bearings).
   NOTE: 1) When replacing the hot roller, make sure that the end with long part of the shaft [D] is at the rear (gear side).
   2) When re-installing the ball bearings and bushings, make sure that the flanges for the bearings and bushings are placed on the outside.
   3) Lubricate the inner and outer surfaces of the bushings [E] with BARRIERTA L55/2 grease when replacing the pressure roller.

When re-installing the three fusing lamps, make sure of the following points:

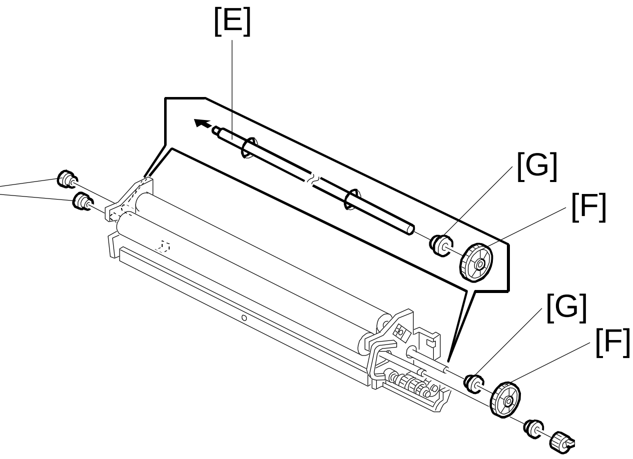
1) The three lamps must be parallel inside the hot roller (DO NOT CROSS THEM).
2) While aligning the three lamps with the cutouts in the front lamp holder, re-install the front and rear lamp holders.
3) At the front, connect the white fusing lamp connectors to the white connectors on the cable. At the rear, connect the green fusing lamp connectors to the green connectors on the cable.
4) Route the thermistor cable and themofuse cable (refer to [C] and [D] on the previous page).

Make sure that the cables are not pinched and do not contact the gears.

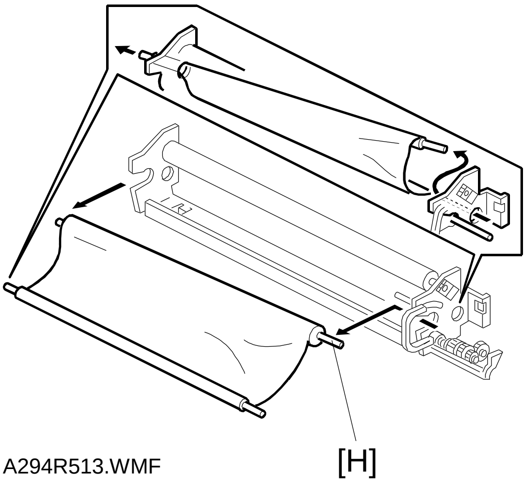
6.9.4 OIL SUPPLY & CLEANING WEB REPLACEMENT



A294R511.WMF

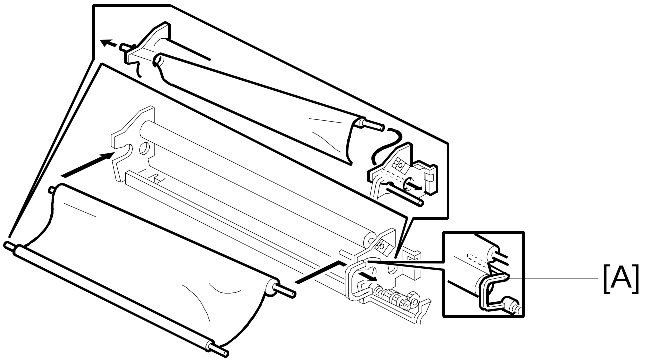


A294R512.WMF

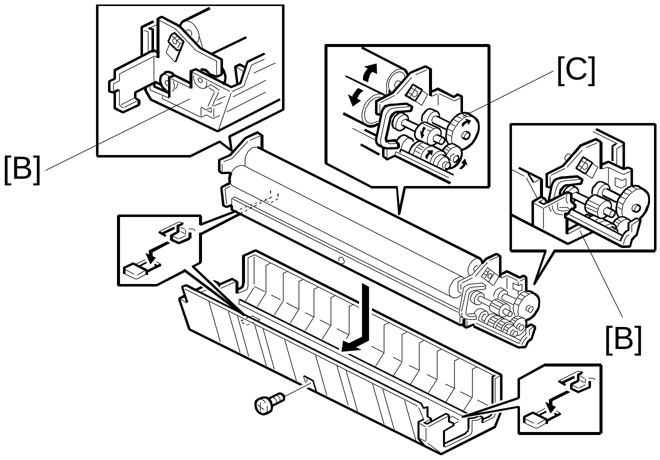


A294R513.WMF

1. Remove the oil supply and cleaning web unit. (See Oil Supply And Cleaning Web Unit Removal.)
2. Put the oil supply and cleaning web unit on a stable flat surface (opening side up) as shown.
3. Remove the screw [A] from the oil supply and cleaning web unit cover.
4. Slide the oil supply and cleaning web assembly [B] to the rear while holding the oil supply and cleaning web unit cover [C]. Then, remove the oil supply and cleaning web assembly [B].
5. Remove two bushings [D] from the short shaft side (rear side).
6. Push the web collecting roller shaft [E] to the short shaft side (rear side). Then remove the web collecting roller gear [F] and bushing [G].
7. Replace the oil supply and cleaning web [H] (1 gear and 1 bushing).



A294R514.WMF



A294R515.WMF

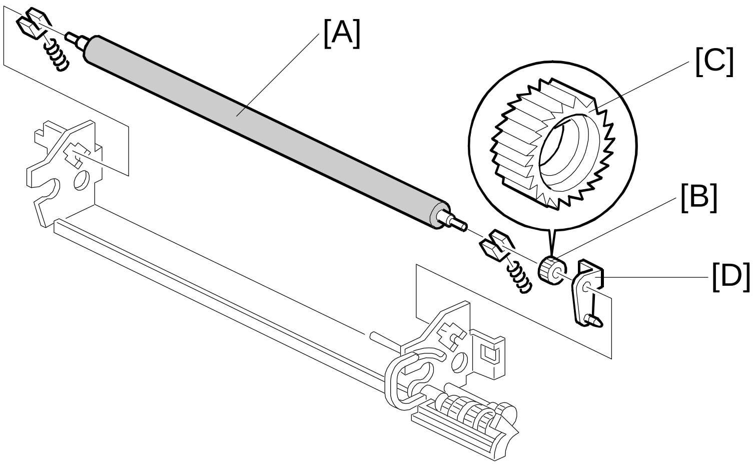
NOTE: 1) When re-installing parts, make sure that the feeler lever [A] for the web end sensor is on the web as shown. Otherwise, after re-installing the parts and turning on the main switch, web end (SC550) will be displayed.

2) When putting back the oil supply and cleaning web assembly, make sure that the flange for the bushings does not ride on the side edges [B] of the oil supply and cleaning web unit cover.

3) If the web has a buckle between the web supply roll and web collecting roll, turn the web collecting roller gear [C] clockwise (front view) until the buckle is pulled straight.

8. Reassemble the fusing unit.
   NOTE: Make sure that the web collecting roller gear engages with the gears on the fusing unit exit unit after re-attaching the oil supply and cleaning web unit.
9. Access SP1-902-1 (web consumption counter), and change the value to 0.

6.9.5 WEB CLEANING ROLLER REPLACEMENT

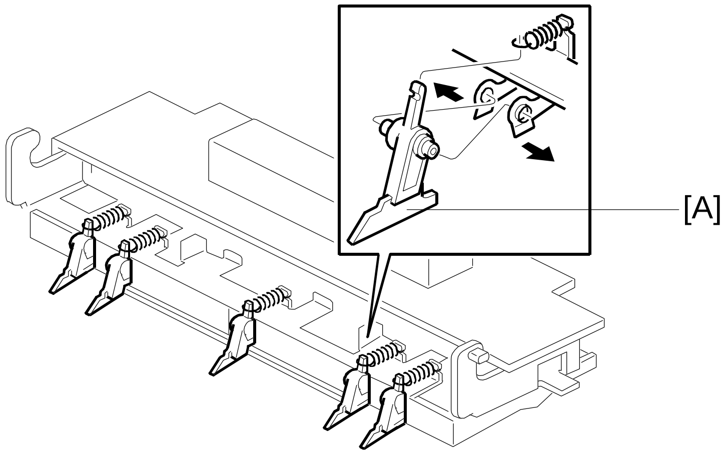


A294R519.WMF

1. Remove the oil supply and cleaning web.
2. Replace the web cleaning roller [A] (1 gear, 1 bracket, 2 bushings, and 2 springs).

NOTE: When putting back the gear [B], the D-shaped opening in this gear should face the roller shaft side. The circular-shaped opening [C] in the gear should face the bracket side [D].

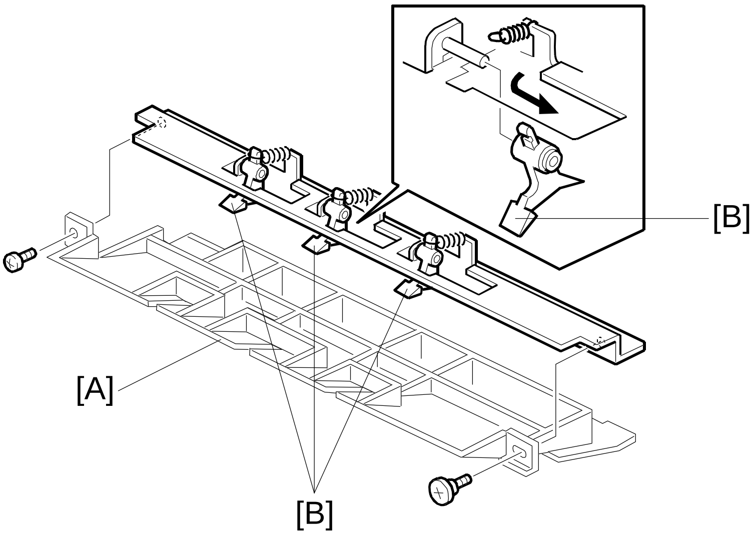
6.9.6 HOT ROLLER STRIPPER REPLACEMENT



A294R517.WMF

1. Remove the hot roller stripper unit:
   Follow steps 1 to 3 of hot roller unit removal.
2. Replace the hot roller strippers [A].

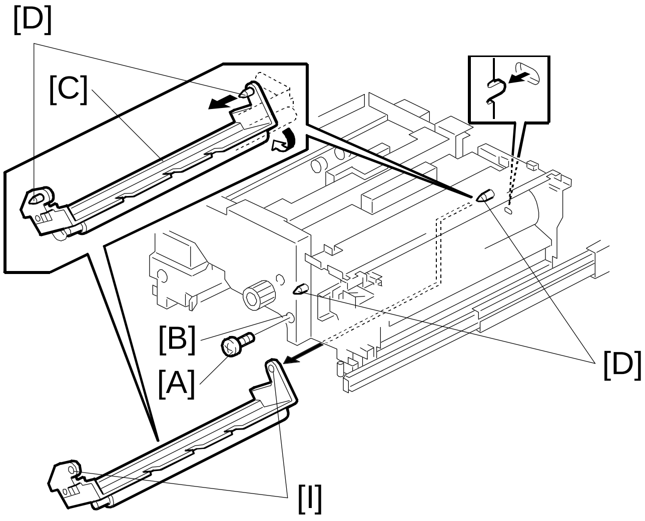
6.9.7 PRESSURE ROLLER STRIPPER REPLACEMENT



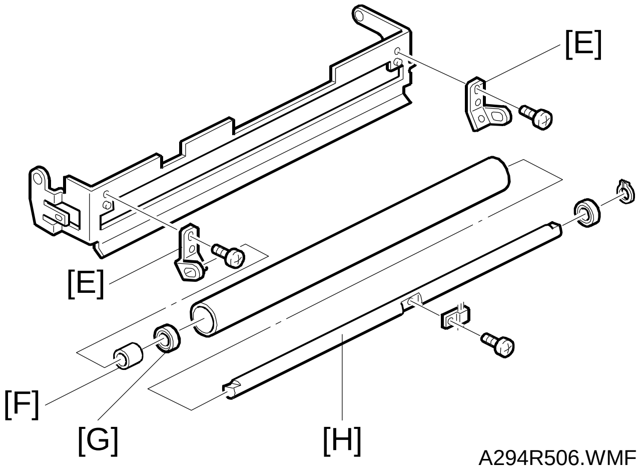
A294R518.WMF

1. Remove the pressure roller stripper unit:
   Follow steps 1 to 7 of hot roller unit removal and pressure roller replacement.
2. Remove the stripper pawl cover [A] (2 screws).
3. Replace the pressure roller strippers [B].

6.9.8 PRESSURE ROLLER CLEANING ROLLER REPLACEMENT



A294R505.WMF

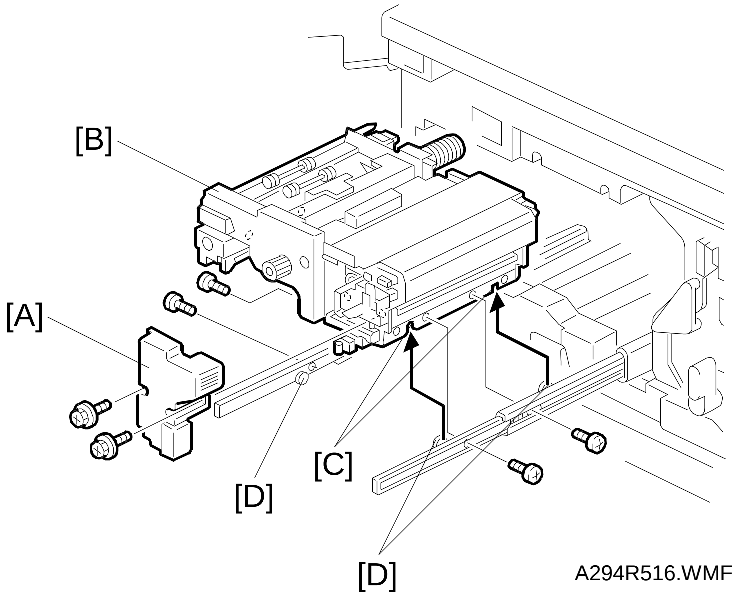


A294R506.WMF

1. Remove the screw [A] through the hole [B] in the fusing unit exit inner cover as shown.
2. Pull the pressure cleaning roller unit [C] to the front, then swing the pressure roller cleaning roller unit down clockwise.
3. Pull out the pressure roller cleaning roller unit again. The pressure roller cleaning roller unit dislodges from the pins [D] on the front and rear side plate of the fusing exit.
4. Remove the two plate springs [E] (2 screws) and replace the pressure roller cleaning roller (1 spacer [F], 1 ball bearing [G] and 1 shaft assembly [H]).

NOTE: When re-installing the pressure roller cleaning roller unit, fit the holes [I] (first the rear, then the front) in the pressure roller cleaning roller unit bracket onto the pins [D] on the rear and front side plates of the fusing unit exit. Then, turn the pressure roller cleaning roller unit counterclockwise, and push the pressure roller cleaning roller unit to the rear. Finally, secure it with the screw [A].

6.9.9 FUSING AND EXIT UNIT REMOVAL

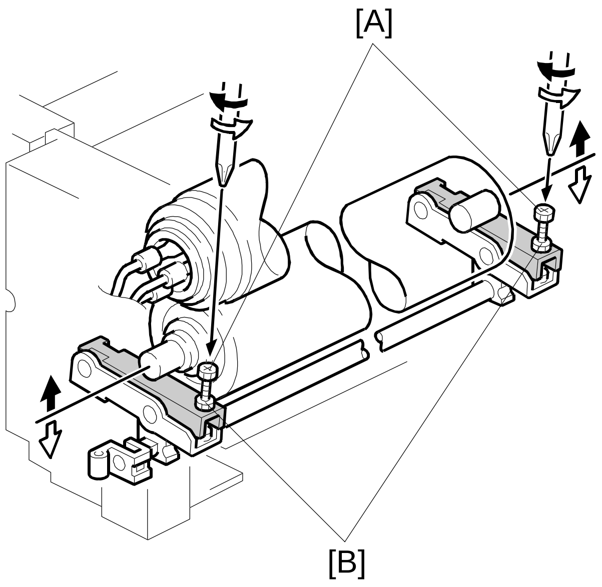


⚠CAUTION
The fusing and exit unit is heavy. Take care not to injure yourself by dropping the fusing and exit unit when removing and installing it.

1. Remove the fusing unit inner cover [A] (2 screws).
2. Remove the fusing and exit unit [B] (4 screws).

NOTE: 1) When putting back the fusing and exit unit, hook the cutouts [C] on the projections [D] on the right and left slide rails.
2) The fusing inner cover prevents the fusing and exit unit from hooking the fusing and exit unit on the slide rails. Put back the fusing and exit unit without the fusing inner cover. Then, put back the fusing inner cover.

6.9.10 FUSING PRESSURE ADJUSTMENT



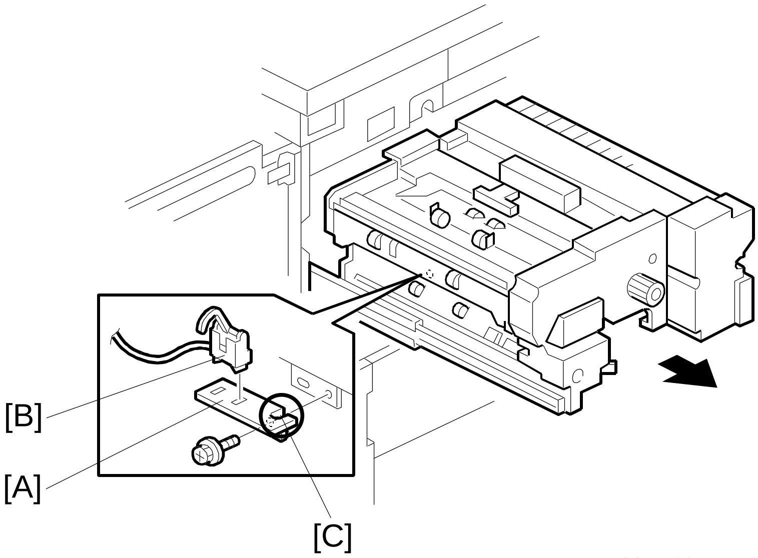
A294R056.WMF

Adjustment standards: Nip width 11.5 ± 0.5 mm (the difference between front and rear measurements should be less than 0.5 mm).

1. Select the fusing nip band check mode (SP1-109).
2. Make a copy using an A4/LT OHP sheet. Copying will start. It will stop in the fusing unit for 30 seconds and then will exit.
   NOTE: If an OHP sheet is not available, use a solid black copy on plain paper (make the copy with the ADF open – the copy will be all black).
3. Measure the nip band width (the shiny band) at both ends.
4. It the nip band width is not within specifications at both ends, release the fusing pressure and adjust it using the adjustment screw [A] (clockwise = increases the pressure, counterclockwise = decreases the pressure).
   NOTE: Loosen the lock nuts [B] before turning the pressure adjustment screw. Re-tighten the nuts after adjusting.
5. Repeat steps 1 to 4 to confirm the nip band width.

6.10 PAPER EXIT/DUPLEX UNIT

6.10.1 EXIT SENSOR REPLACEMENT

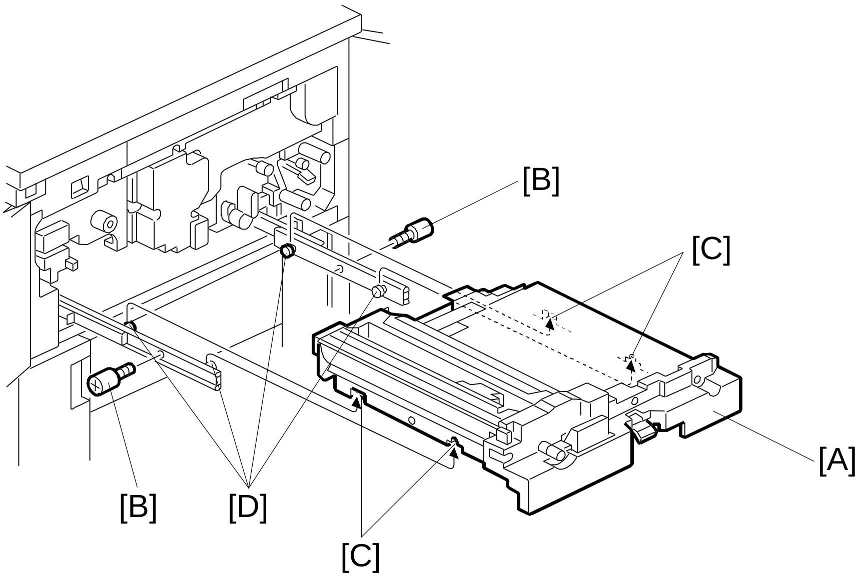


A294R601.WMF

1. Pull out the fusing and exit unit.
2. Remove the sensor bracket [A] with the sensor (1 screw, 1 connector, and 2 clamps).
3. Replace the exit sensor [B].

NOTE: When putting back the sensor bracket, run the cable through the cutout [C] to slacken the cable.

6.10.2 DUPLEX UNIT REMOVAL

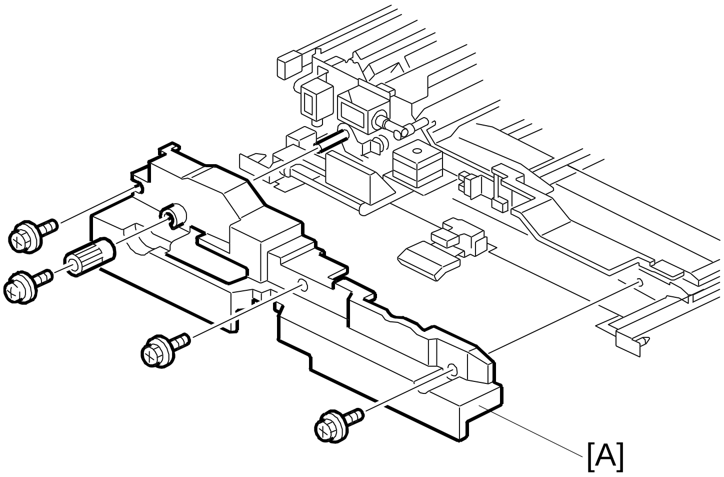


A294R801.WMF

1. Open the left and right front doors and pull out the duplex unit [A].
2. Remove the 2 shoulder screws [B].
3. Lift up the duplex unit.

NOTE: When putting back the duplex unit, align the cutouts [C] with the slide rail projections [D].

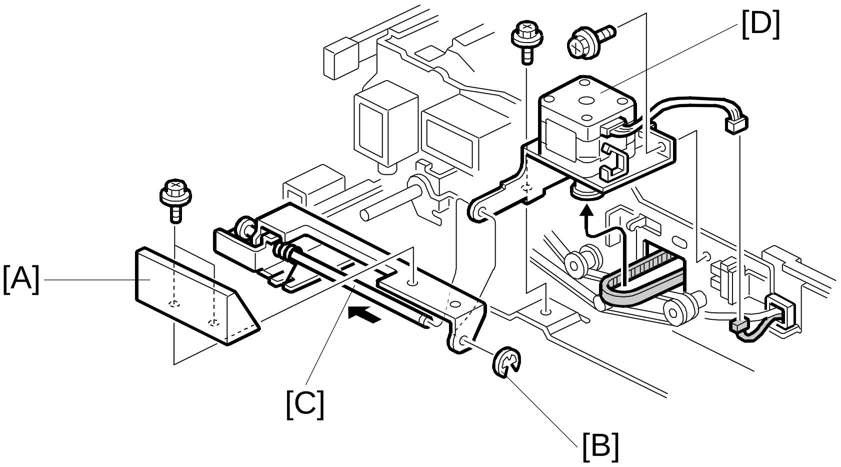
6.10.3 DUPLEX UNIT INNER COVER REMOVAL



A294R802.WMF

1. Pull out the duplex unit.
2. Remove the duplex unit inner cover [A] (1 knob and 4 screws).

6.10.4 JOGGER MOTOR REPLACEMENT

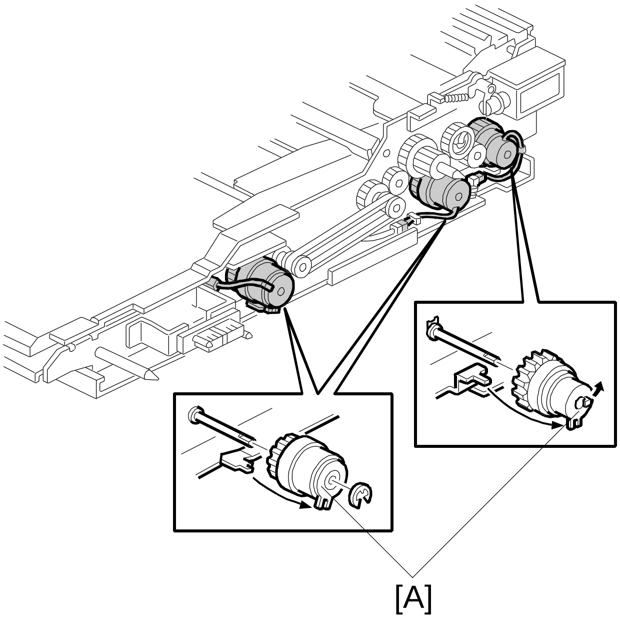


A294R803.WMF

1. Remove the duplex inner cover. (See Duplex Unit Inner Cover Removal.)
2. Remove the duplex grip [A] (2 screws).
3. Remove the E-ring [B] and slide the duplex grip shaft [C] to the left.
4. Remove the jogger motor [D] (2 screws, 1 connector, 2 clamps).

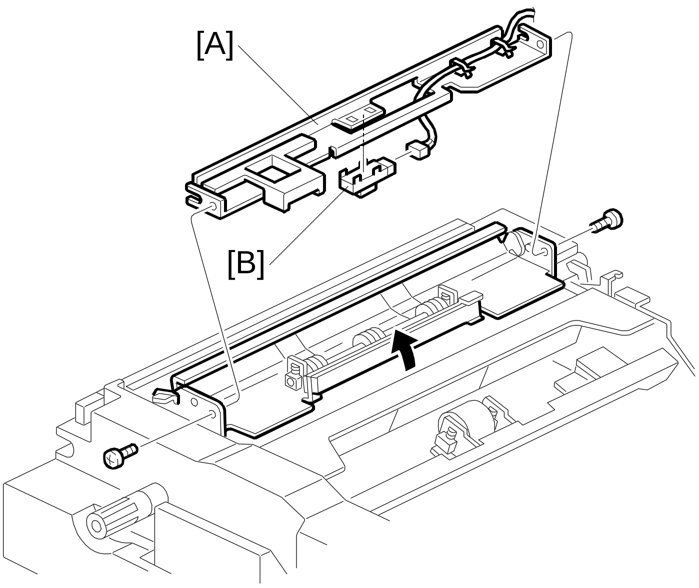
NOTE: When putting back the jogger motor, put back the duplex grip shaft and E-ring first. Then, tighten the screws for the jogger motor.

6.10.5 DUPLEX UNIT CLUTCH REPLACEMENT



1. Remove the duplex unit.
2. Replace each clutch [A] (1 connector and 1 E-ring or 1 clutch stopper).

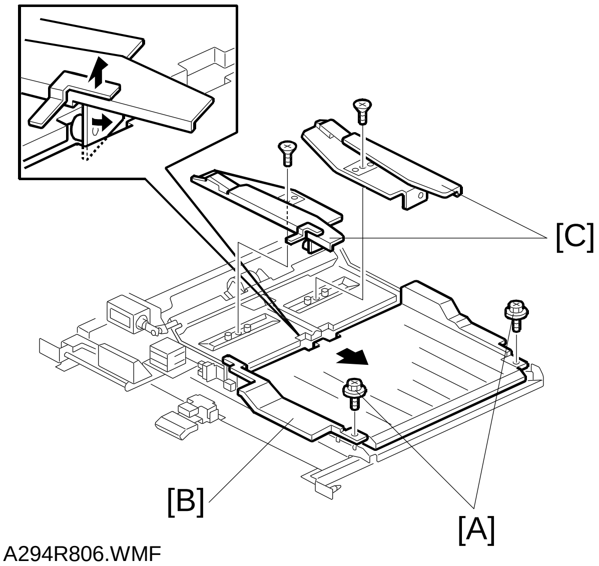
6.10.6 DUPLEX ENTRANCE SENSOR REPLACEMENT



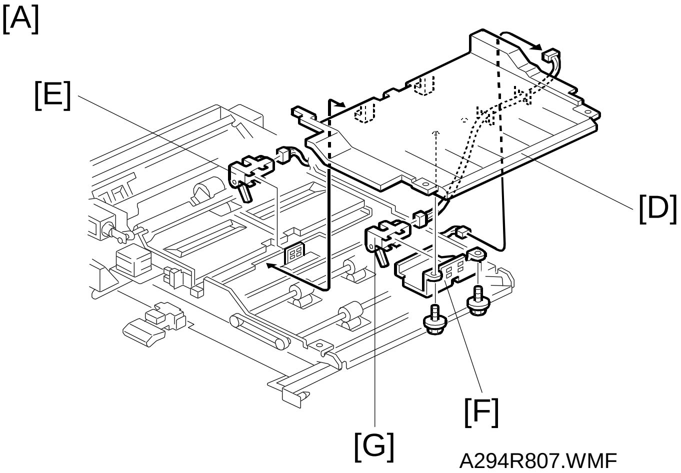
A294R805.WMF

1. Pull out the duplex unit.
2. Remove the entrance sensor bracket [A] with the sensor (2 screws).
3. Replace the duplex entrance sensor [B] (1 connector).

6.10.7 DUPLEX TRANSPORT SENSORS 2 & 3



A294R806.WMF

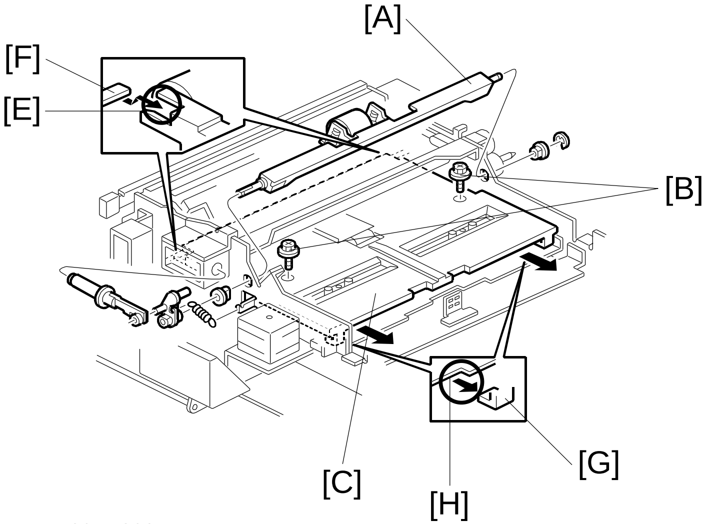


A294R807.WMF

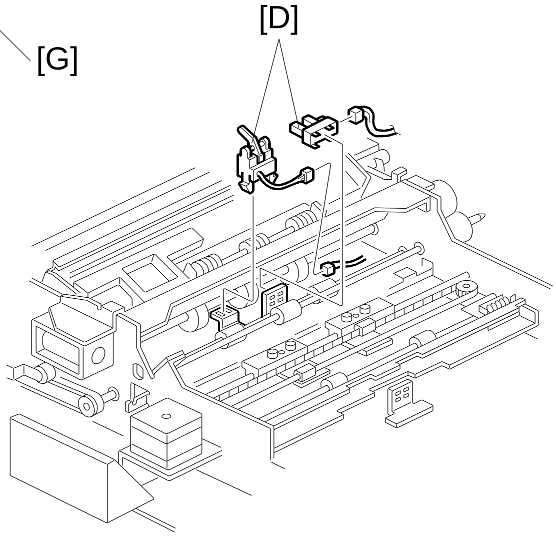
1. Pull out the duplex unit.
2. Remove the 2 screws [A] (front side: shoulder screw) securing the upper duplex cover and slide the upper duplex cover [B] to the right.
3. Remove both the front and rear jogger fences [C] (1 screw each).
4. Remove the upper duplex cover [D] (1 connector).
5. Replace duplex transport sensor 2 [E] (1 connector).
6. Remove the sensor bracket [F] with duplex transport sensor 3 (2 screws and 1 connector).
7. Replace duplex transport sensor 3 [G].

NOTE: When putting back the jogger fences, re-install both the jogger fences so that they are parallel.

6.10.8 DUPLEX TRANSPORT SENSOR 1/DUPLEX INVERTER SENSOR



A294R808.WMF



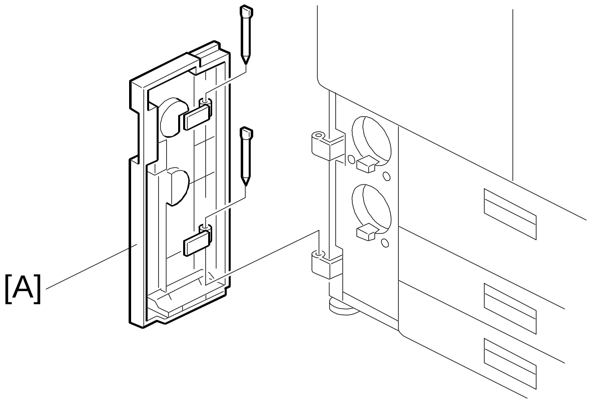
A294R809.WMF

1. Pull out the duplex unit.
2. Remove the upper duplex cover.
3. Remove the reverse trigger roller [A] (1 E-ring, 2 bushings, and 2 solenoid links).
4. Remove the 2 screws [B] (front side: shoulder screw) securing the left upper cover and slide the left upper cover [C] to the right and remove it.
5. Replace each sensor [D] (1 connector each).

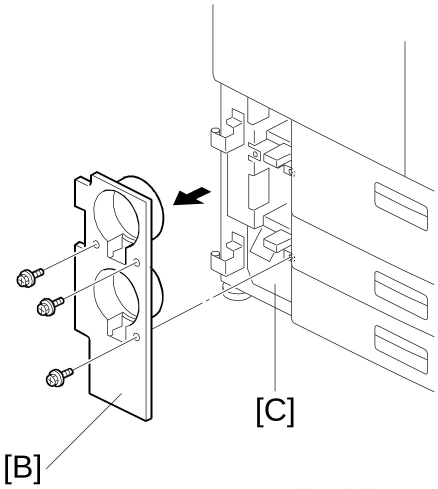
NOTE: When putting back the upper left cover, make sure that the cutouts [E] catch the duplex side plate projections [F] and the hooks [G] are underneath the bracket plate [H].

6.11 TONER BANK

6.11.1 WASTE TONER BOTTLE REMOVAL



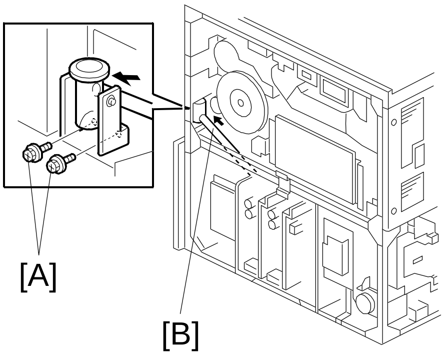
A294R901.WMF



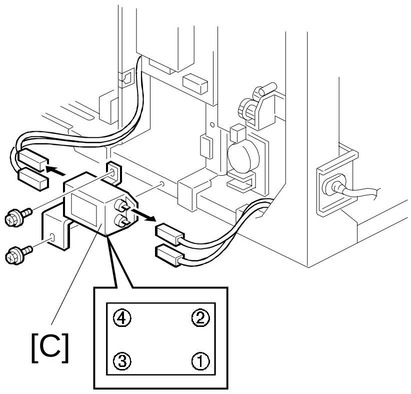
A294R902.WMF

1. Remove the toner bank cover [A] (2 pins).
2. Remove the toner bank inner cover [B] (3 screws).
3. Remove the waste toner bottle [C].

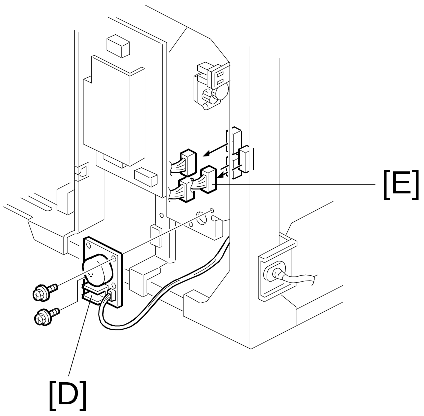
6.11.2 TONER BANK UNIT REMOVAL



A294R903.WMF



A294R904.WMF



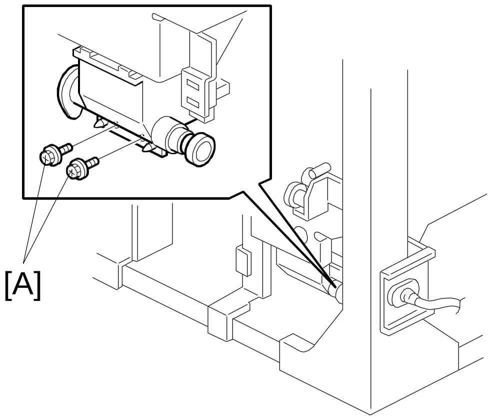
A294R905.WMF

1. Close the toner bottle cap using SP5-804-62 (upper bottle) or -63 (lower bottle). Then remove the toner bottles from the bank.
2. Turn the toner bank motor for 1 minute using SP5-804-61.
3. Discharge toner from the toner bank by using SP2-226.
4. Turn off the main switch and unplug the power cord. Follow steps 1 and 2 of waste toner bottle removal.
5. Remove the upper rear and lower rear covers. (See Exterior.)
6. Remove the upper left cover and lower left cover. (See Exterior.)
7. Remove the two screws [A] securing the toner supply cylinder so that the toner transport coil tube [B] can be shifted to the left to remove the snap ring in the toner bank drive section later.

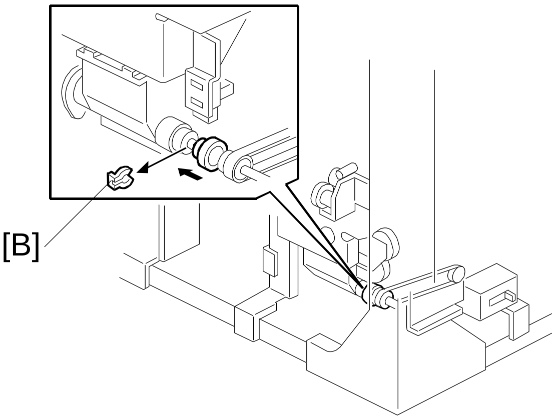
⚠CAUTION

Make sure that the power cord is unplugged before removing the noise filter in the next step.

8. Remove the noise filter [C] (2 screws and 4 connectors; upper: ④, ② white lower: ③, ① yellow) and toner bank motor [D] (2 screws, 1 connector).
9. Disconnect the three connectors [E] from the toner bank unit.

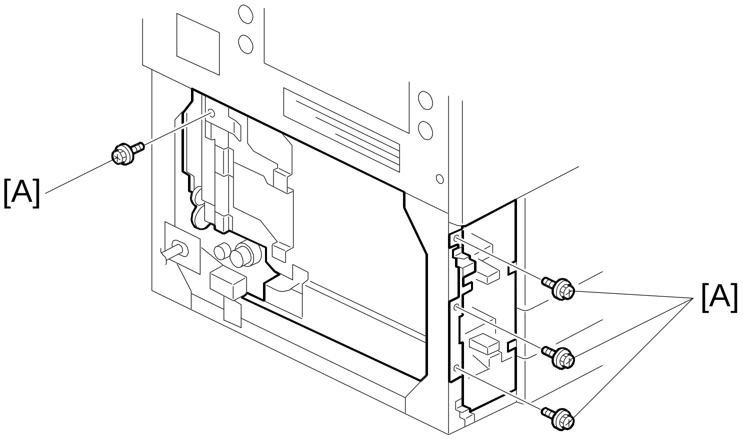


A294R907.WMF

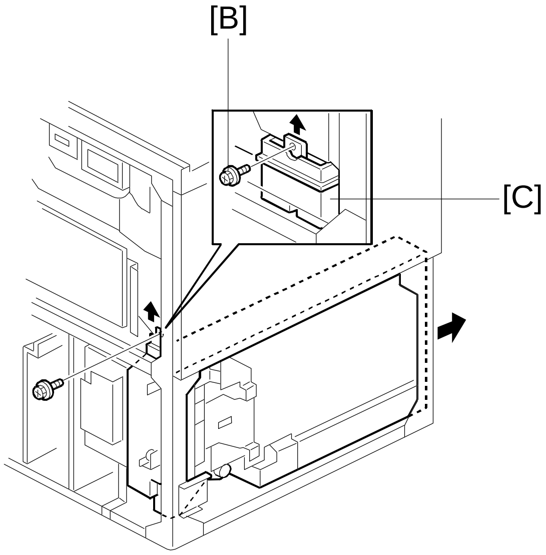


A294R906.WMF

10. Remove the two screws [A] securing the toner transport coil tube.
11. While sliding the toner transport coil tube, remove the snap ring [B].



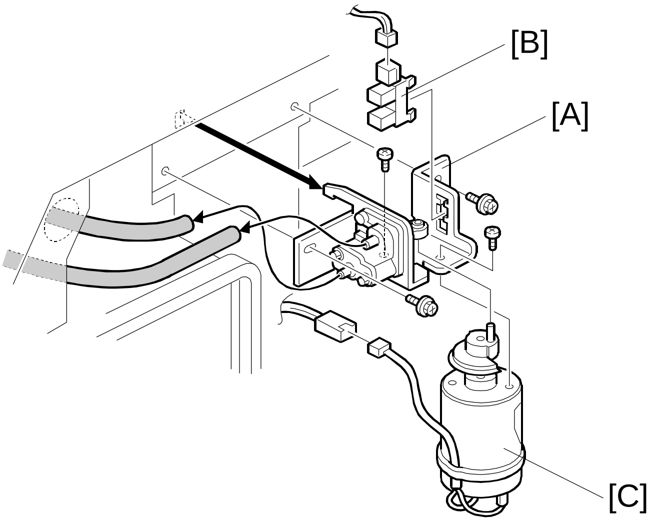
A294R908.WMF



A294R909.WMF

12. Remove the four screws [A] securing the toner bank unit.
    NOTE: Try not to spill much toner from the toner bank.
13. Remove the screw [B] securing the toner recycling and collection cover [C].
14. While lifting the toner recycling and collection cover [C], pull out the toner bank unit.

6.11.3 TONER SUPPLY MOTOR AND TONER SUPPLY MOTOR SENSOR REMOVAL

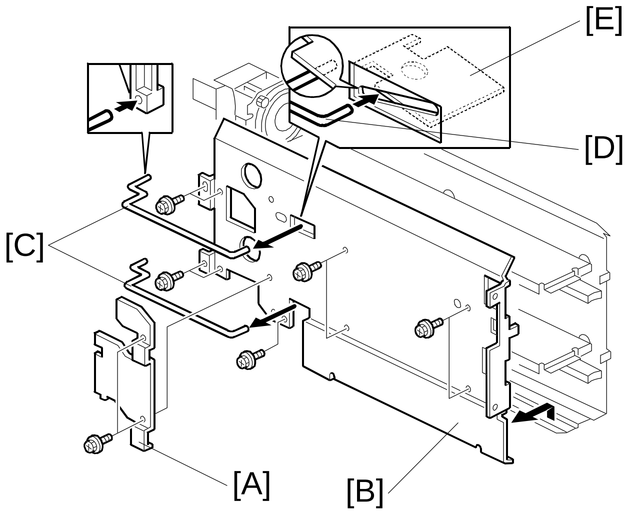


A294R912.WMF

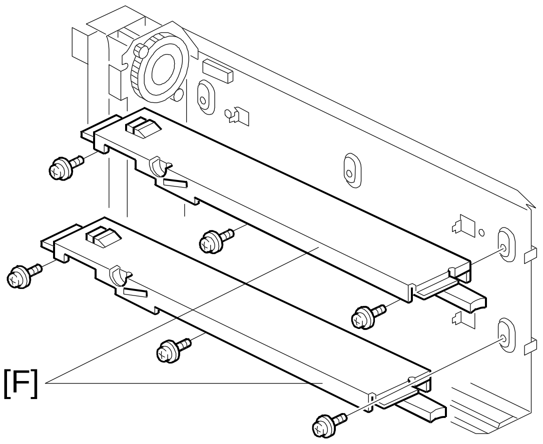
1. Remove the upper right cover.
2. Remove the bracket [A] with the toner supply motor (2 screws, 2 connectors and 2 pipes).
3. Remove the toner supply motor sensor [B].
4. Remove the toner supply motor [C] (2 screws).

NOTE: When putting back the parts, make sure that the 2 pipes are connected at the correct positions, as shown.

6.11.4 ACCESS TO INSIDE THE TONER BANK



A294R947.WMF



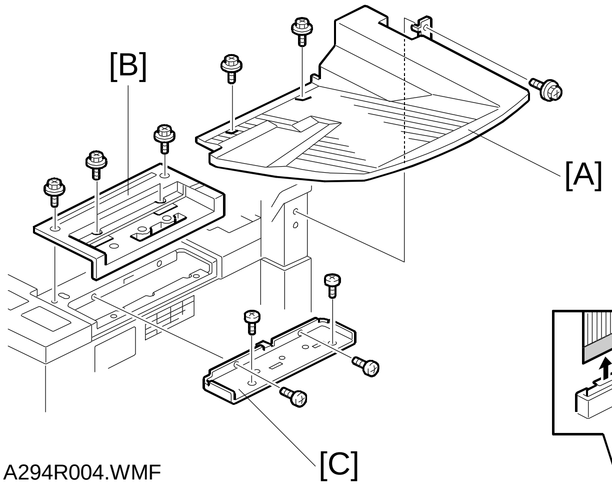
A294R948.WMF

NOTE: The toner bottle sensors and toner collection bottle sensor are inside the toner bank.

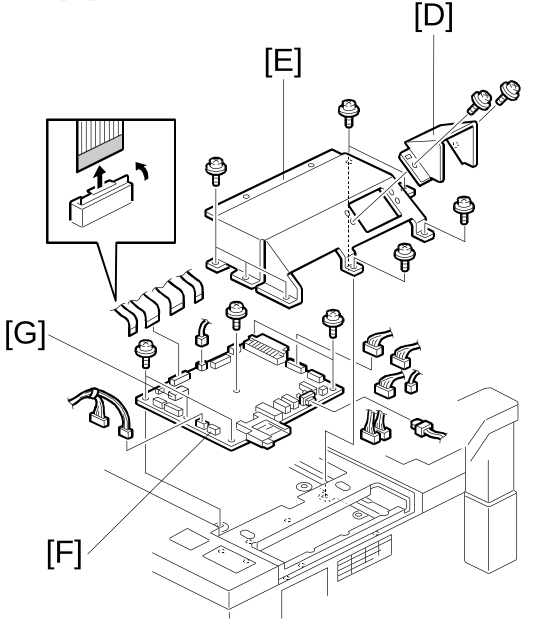
1. Remove the toner bank (see Toner Bank Unit Removal).
2. Remove the toner release link bracket [A] (2 screws).
3. Remove the left side plate [B] (9 screws and 2 links [C]).
   NOTE: When putting back the links [C], put the front pin [D] under the lock plate [E].
4. Remove the toner bottle bottom plates [F] (3 screws each).

6.12 BOARDS AND OTHER ITEMS

6.12.1 SICU BOARD



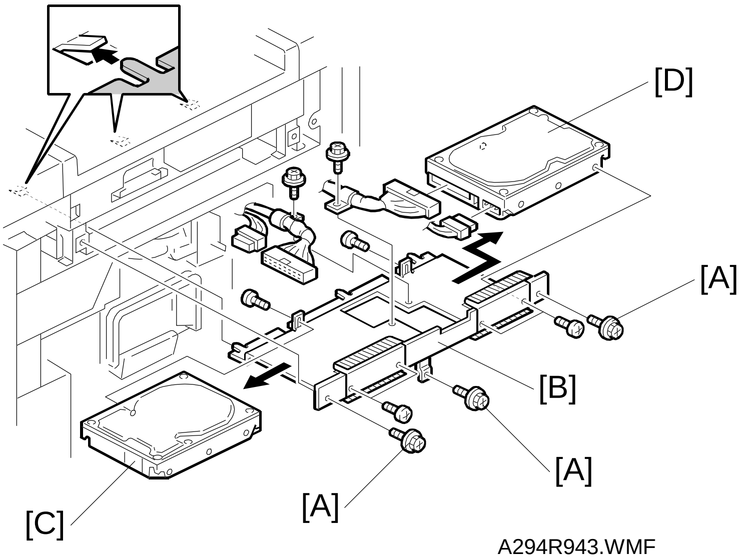
A294R004.WMF



A294R005.WMF

1. Remove the exposure glass (see Exposure Glass).
2. Remove the lens cover (8 screws) (see Lens Block).
3. Remove the original exit tray [A] (3 screws).
4. Remove the scanner right cover [B] (4 screws).
5. Remove the cover bracket [C] (4 screws).
6. Remove the cooling fan bracket [D] (2 screws).
7. Remove the SICU cover bracket [E] (7 screws).
8. Replace the SICU [F] (4 flat cables, 9 connectors, and 7 screws).
9. Remove the NV-RAM [G] from the old SICU and install it on the new board.

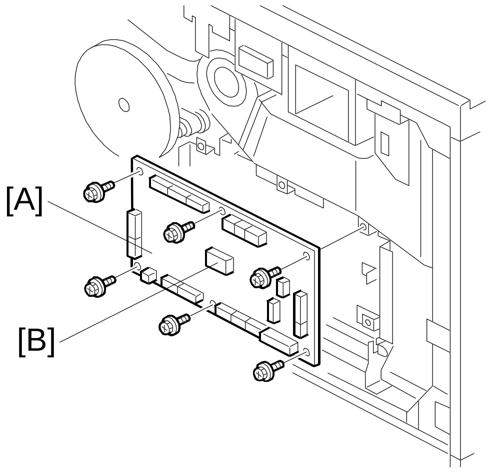
6.12.2 HARD DISK DRIVE



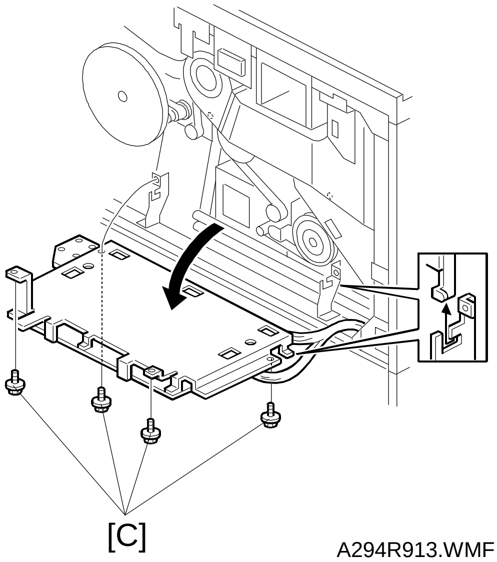
A294R943.WMF

1. Remove the upper right cover (4 screws). See Exterior.
2. Remove three screws [A] holding the HDD bracket [B]. Then pull out the HDD assembly.
3. Replace hard disk drive 1 [C] or hard disk drive 2 [D] (2 screws and 2 connectors each).
   NOTE: Connect the black connector to HDD 1, and the gray connector to HDD 2.
4. Turn the main switch on and do SP4-911-1 (for HDD 1) or SP4-912-1 (for HDD 2).
   NOTE: If either SP4-911-1 or SP4-912-1 is done, all the data for pre-set stamps and user stamps are deleted from both disks.
5. Install the stamp data using a flash memory card. (Refer to Stamp Data Installation in section 4.)

6.12.3 BCU BOARD



A294R914.WMF

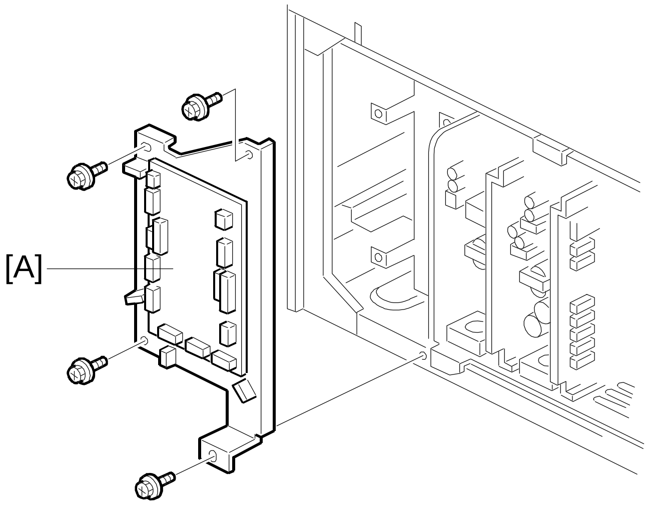


A294R913.WMF

1. Remove the upper rear cover (6 screws). See Exterior.
2. Replace the BCU board [A] (6 screws and 20 connectors).
3. Remove the NV-RAM [B] from the old BCU board and install it on the new board.

NOTE: If the screws [C] are removed, the BCU board can be swung out.

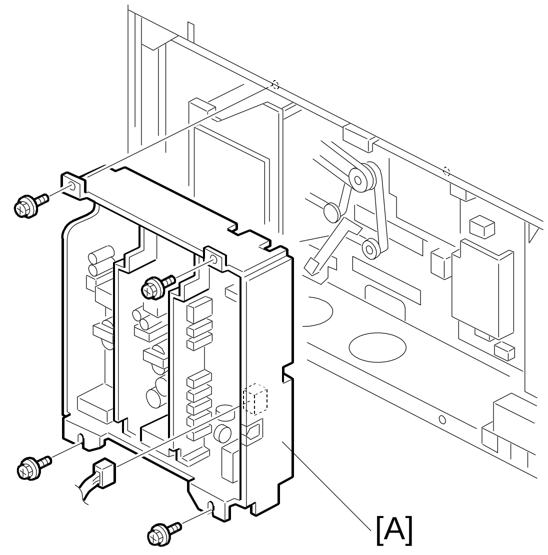
6.12.4 I/O BOARD



A294R925.WMF

1. Remove the lower rear cover (6 screws). See Exterior.
2. Replace the I/O board [A] (6 screws and 16 connectors).

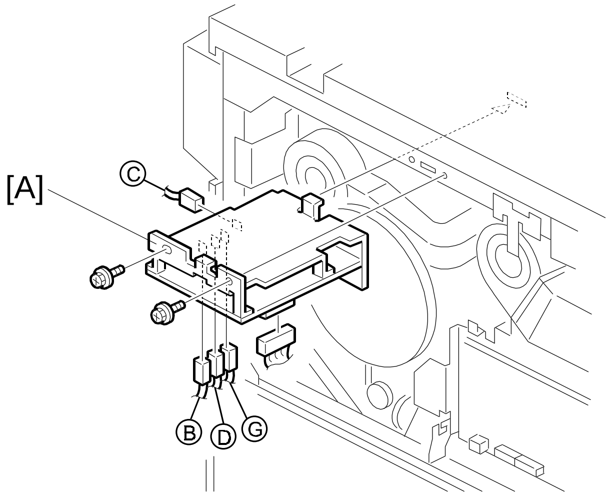
6.12.5 PSU



A294R927.WMF

1. Remove the lower rear cover (6 screws). See Exterior.
2. Replace the PSU [A] (4 screws and 8 connectors).

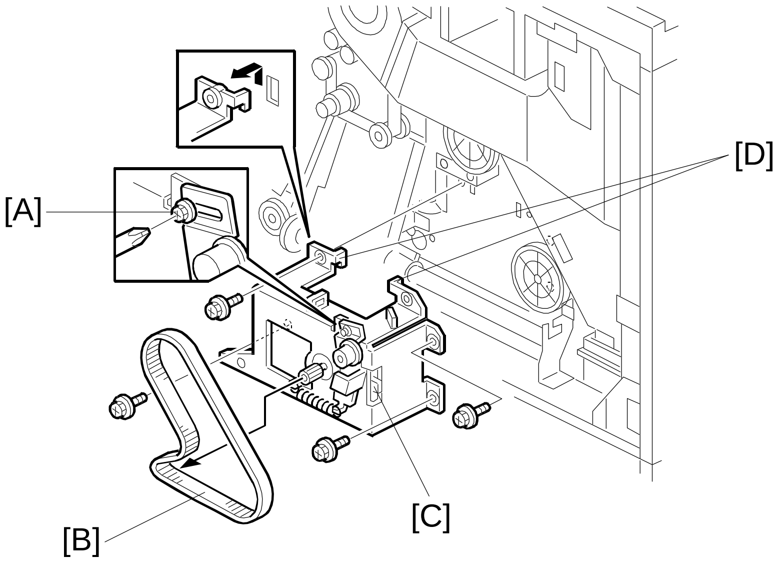
6.12.6 CHARGE/GRID/BIAS POWER PACK



A294R915.WMF

1. Remove the upper rear cover (6 screws). See Exterior.
2. Replace the charge/grid/bias power pack [A] (2 screws and 5 connectors).

6.12.7 FUSING/DUPLEX MOTOR REPLACEMENT

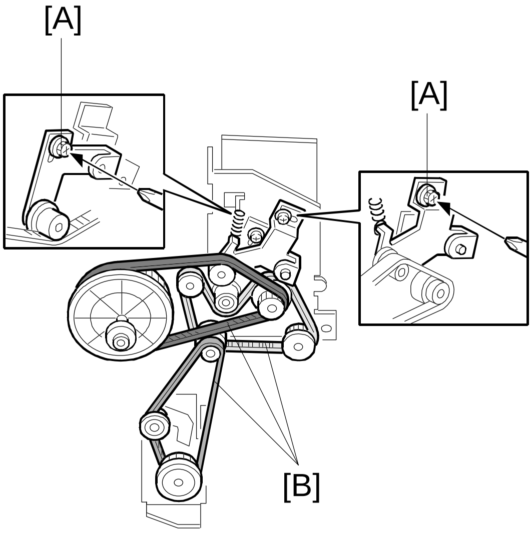


A294R921.WMF

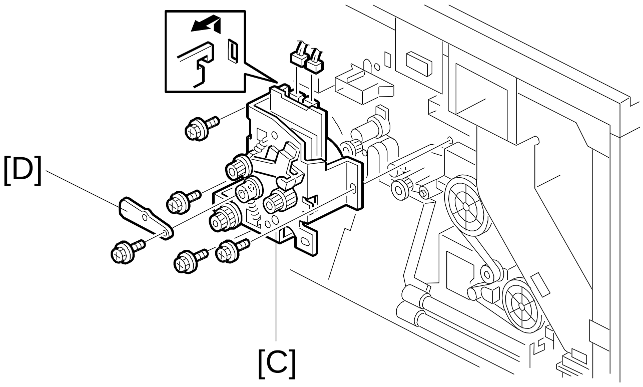
1. Remove the upper rear cover.
2. Swing out the BCU board. (Refer to the BCU board replacement procedure)
3. Loosen screw [A] to release the belt tension.
4. Remove the timing belt [B].
5. Remove the fusing/duplex motor [C] (4 screws, 2 hooks [D]).

NOTE: When putting back the parts, hook up the tension spring (this automatically gives the belt the correct tension), then tighten screw [A].

6.12.8 DRUM MOTOR REPLACEMENT



A294R923.WMF



A294R924.WMF

1. Remove the upper rear cover.
2. Remove the fly wheel (3 screws).
3. Lower the BCU board (4 screws).
4. Loosen the screws [A] to loosen the belts, and remove the three timing belts [B].
5. Remove the drum motor [C] (5 screws, 2 connector, 1 hook, and 1 stopper [D]).

NOTE: When putting back the parts, hook up the tension spring (this automatically gives the belt the correct tension), then tighten screw [A].

6.13 COPY IMAGE ADJUSTMENT: PRINTING/SCANNING

NOTE: 1) You need to perform these adjustment(s) after replacing any of the following parts:

- Scanner Wires
- Lens Block
- Scanner Motor
- Polygon Mirror Motor
- Paper Side Fences
- Memory All Clear

2) For more details about accessing SP modes, refer to section 4.

6.13.1 PRINTING

NOTE: 1) Make sure the paper is installed correctly in each paper tray before you start these adjustments.

2) Use the Trimming Area Pattern (SP2-902-3, No.15) to print the test pattern for the following procedures.

3) Set SP2-902-3 to 0 again after completing these printing adjustments.

Registration – Leading Edge

1. Check the leading edge registration using the Trimming Area Pattern, and adjust it using SP1-001 if necessary. The specification is: 3 ± 2 mm.

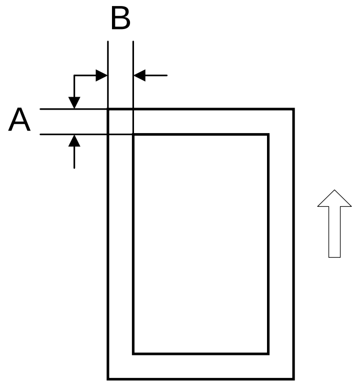
Registration – Side-to-Side

Do the parallel image adjustment after the side-to-side registration adjustment.

Using SP Mode

1. Check the side-to-side registration for each paper feed station using the Trimming Area Pattern, and adjust them using the following SP modes if necessary.

	SP mode	**Specification**
1st paper feed	SP1-002-1	2 ± 1.5 mm
2nd paper feed	SP1-002-2	
3rd paper feed (Optional PFU tray 1)	SP1-002-3	
4th paper feed (LCT)	SP1-002-4	
5th paper feed (LCT)	SP1-002-5	
6th paper feed (LCT)	SP1-002-6	
Duplex	SP1-002-7	



A: Leading Edge Registration
B: Side-to-side Registration

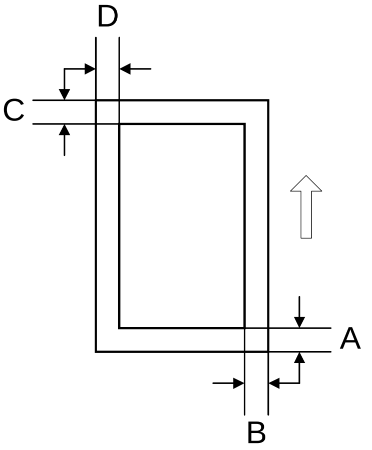
A294R633.WMF

Blank Margin

NOTE: If the leading edge/side-to-side registration cannot be adjusted within the specifications, adjust the leading/left side edge blank margin.

1. Check the trailing edge and right side edge blank margins using the Trimming Area Pattern, and adjust them using the following SP modes if necessary.

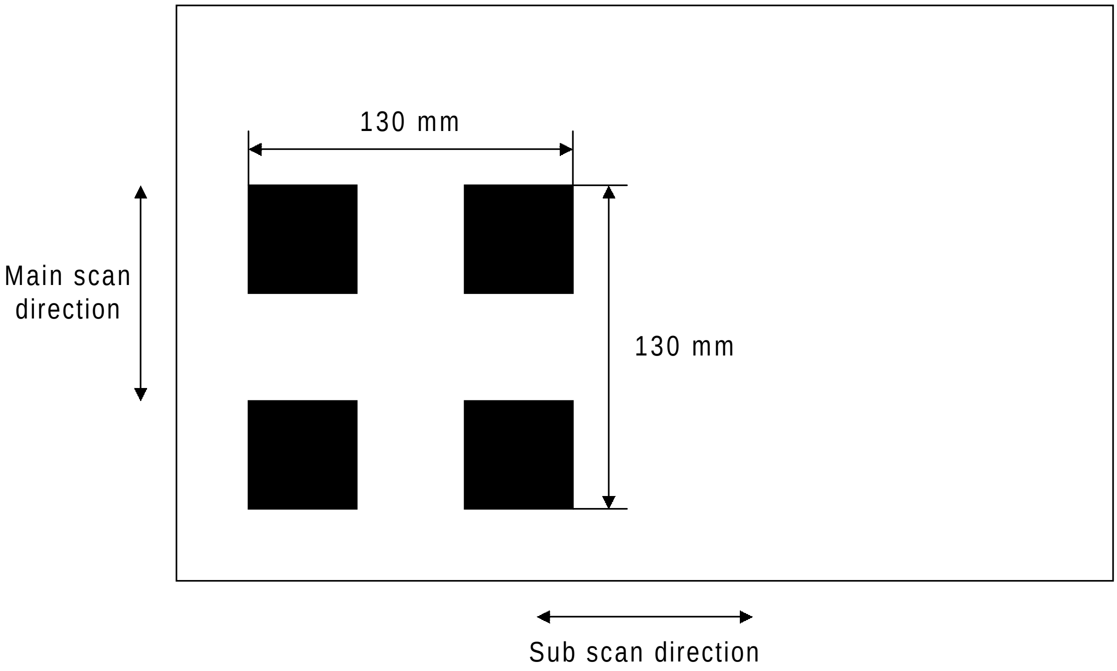
	SP mode	**Specification**
Trailing edge	SP2-101-2	3 ± 2 mm
Right edge	SP2-101-4	More than 0.5 mm
Leading edge	SP2-101-1	3 ± 2 mm
Left edge	SP2-101-3	2 ± 1.5 mm



A: Trailing Edge Blank Margin
B: Right Edge Blank Margin
C: Leading Edge Blank Margin
D: Left Edge Blank Margin

A294R634.WMF

Magnification Adjustment



A294R999.WMF

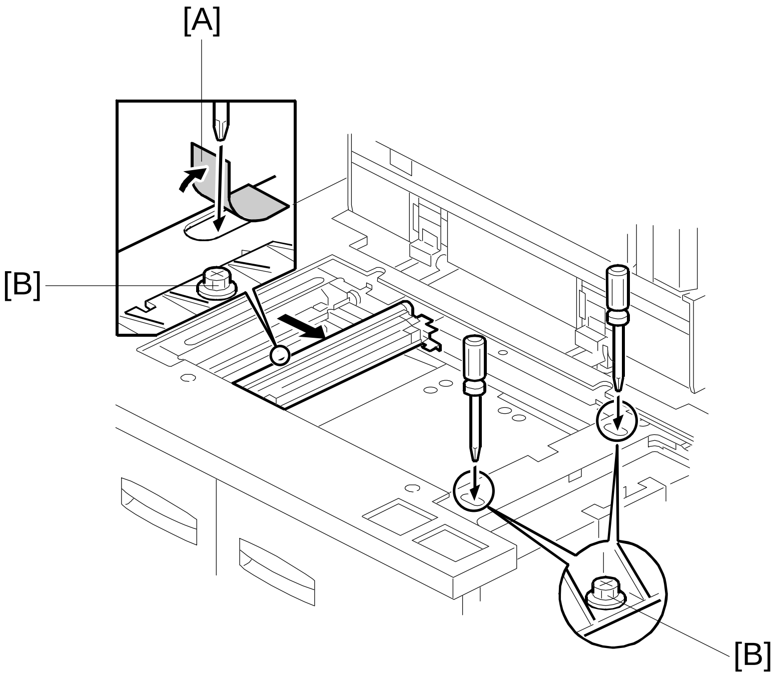
1. Enter SP mode and access SP2-902-3.
2. Select pattern 1 (Alternating Dot pattern – 1,024 dots) and make a print using A3 (DLT) paper.
3. Check the length between the edges of the black squares. The length should be 130 mm.
   1) If the magnification in the main scan direction is not within 100 ± 0.5%, adjust using SP2-909-1.
   2) If the magnification in the sub scan direction is not within 100 ± 1.0%, adjust using SP2-910.

NOTE: Check the magnification after the paper cools down.

6.13.2 PARALLELOGRAM IMAGE ADJUSTMENT

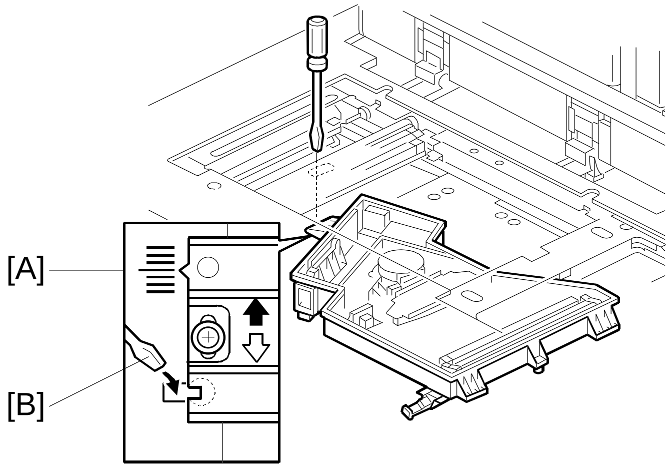
If a parallelogram type image is printed while using a trimming area pattern, do the following to adjust the printing registration or the printing margin.

NOTE: 1) The following procedure should be done after adjusting the side-to-side registration for each paper tray.
2) This adjustment is only effective for a parallelogram image caused by the printer. It should not be applied if the skew is caused by the scanner.

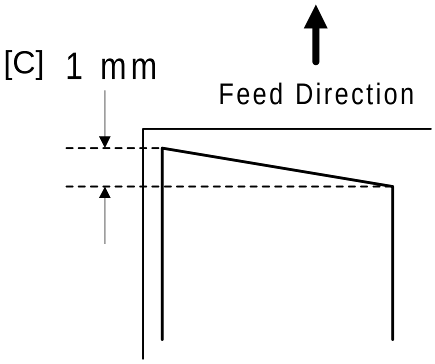


A294R103.WMF

1. Check whether a parallelogram image appears as shown on the next page when printing a trimming area pattern (SP2-902-3, No.15). If it appears, do the following.
2. Remove the exposure glass (see Replacement and Adjustment – Exposure Glass Removal).
3. Remove the original exit tray and the scanner right cover. (see Replacement and Adjustment – Scanner Drive Wires)
4. Peel away the mylar [A] covering the opening in the frame.
5. Loosen the three screws [B] that hold the laser unit.



A294R104.WMF



A294R591.WMF

6. Make a note of the position of the laser unit using the scale [A].
7. Adjust the laser unit position using a flat screwdriver [B] as shown.
   If the right side of the trimming area pattern is down by about 1 mm as shown [C], the laser unit should be rotated about one graduation in the direction of the black arrow. If the opposite side is down, adjust in the opposite direction.
8. Tighten the three screws to secure the laser unit.
9. Print the trimming area pattern to check the image. If it is still the same, repeat steps 2 to 7.

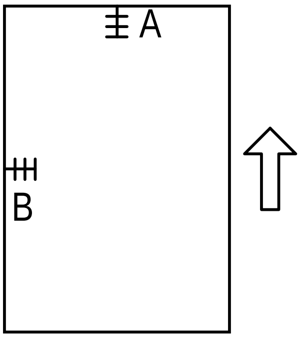
6.13.3 SCANNING

NOTE: 1) Before doing the following scanner adjustments, check the printing registration/side-to-side adjustment and the blank margin adjustment.
2) Use an OS-A3 test chart to perform the following adjustments.

Registration: Platen Mode

1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the leading edge and side-to-side registration, and adjust them using the following SP modes if necessary.

	SP mode
Leading Edge	SP4-010
Side-to-side	SP4-011



A: Leading Edge Registration
B: Side-to-side Registration

A294R635.WMF

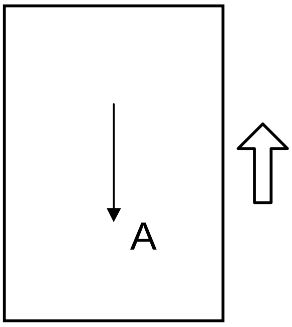
Magnification

NOTE: Use an OS-A3 test chart to perform the following adjustment.

Scanner Sub Scan Magnification

1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the magnification ratio, and adjust it using the following SP mode if necessary. The specification is within ±1%.

	SP mode
Scanner Sub Scan Magnification	SP4-008



A: Sub Scan Magnification

A294R636.WMF

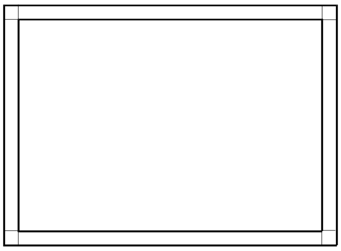
6.13.4 ADF IMAGE ADJUSTMENT

Registration

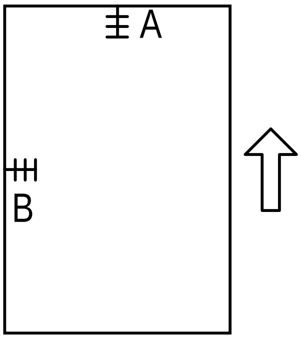
NOTE: Make a temporary test chart as shown below left, using A3/DLT paper.

1. Place the temporary test chart on the ADF and make a copy from one of the feed stations.
2. Check the registration, and adjust using the following SP modes if necessary.

	SP mode
Side-to-side Registration	SP6-006-1
Leading Edge Registration (Thin original mode)	SP6-006-2
Leading Edge Registration (Single-sided/Duplex: front)	SP6-006-3
Leading Edge Registration (Duplex: rear)	SP6-006-4



A294R637.WMF



A: Leading Edge Registration
B: Side-to-side Registration

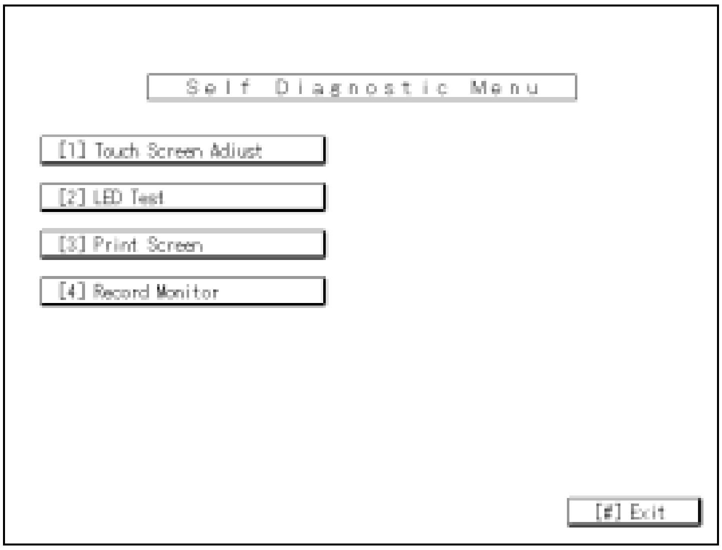
A294R692.WMF

6.14 TOUCH SCREEN CALIBRATION

When the touch panel detection mechanism is not working properly, calibrate the touch screen as follows:

1. Press the following keys in sequence to enter operation panel self diagnostic mode.

$\boxed{1} \rightarrow \boxed{9} \rightarrow \boxed{9} \rightarrow \boxed{3} \rightarrow \boxed{C} \times 5$


Self Diagnostic Menu
[1] Touch Screen Adjust
[2] LED Test
[3] Print Screen
[4] Record Monitor
[#] Exit

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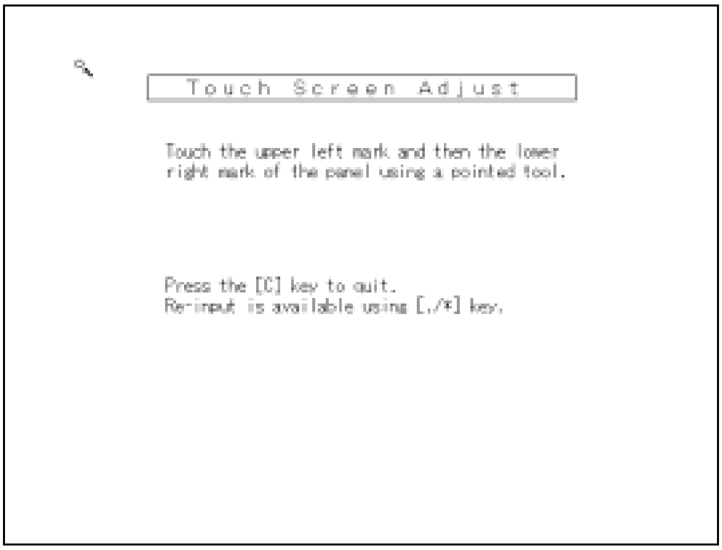
2. Select “[1] Touch Screen Adjust”.

NOTE: [2] tests the LEDs on the operation unit, not the machine’s main operation panel.
[3] and [4] are for factory use only. Do not use unless directed by senior technical staff.


Touch Screen Adjust

Touch the upper left mark and then the lower right mark of the panel using a pointed tool.

Press the [C] key to quit.
Re-input is available using [./*] key.

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3. The “Touch Screen Adjustment” calibration screen will appear. Touch the center of the circle in the upper left corner then the lower right corner of the panel using a pointer (but not sharp!) tool.
4. Touch a few spots on the LED touch panel, and confirm that the marker appears on the screen at exactly the same location as where it is touched. If it does not, touch “Re-input” (or press the [●/✳] key) and repeat the calibration procedure.
5. Touch “OK” on the adjustment screen.`
6. Touch “Exit” to exit the self diagnostic mode.

7. TROUBLESHOOTING

7.1 SERVICE CALL CONDITIONS

7.1.1 SUMMARY

There are 4 levels of service call conditions.

Level	Definition	Reset Procedure
A	To prevent the machine from being damaged, the SC can only be reset by a service representative (see the note below). The copier cannot be operated at all.	Enter SP mode, then turn the main power switch off and on.
B	The SC can be reset by turning the main power switch off and on if the SC was caused by incorrect sensor detection.	Turn the operation switch or main power switch off and on. A level B’ SC can only be reset by turning the main power switch off and on.
C	The copier can be operated as usual except for the unit related to the service call.	Turn the operation switch off and on.
D	The SC history is updated. The machine can be operated as usual.	The SC will not be displayed. All that happens is that the SC history is updated.

NOTE: 1) If the problem concerns electrical circuit boards, first disconnect then reconnect the connectors before replacing the PCBs.
2) If the problem concerns a motor lock, first check the mechanical load before replacing motors or sensors.
3) When a Level A or B SC occurs while in an SP mode, the display does not indicate the SC number. If this occurs, check the SC number after leaving the SP mode. This does not apply to Level B’ codes.

7.1.2 SC CODE DESCRIPTIONS

SC101: Exposure Lamp Error

Definition [B]

The standard white level was not detected properly when scanning the white plate.

Possible Causes

- Exposure lamp defective
- Lamp stabilizer defective
- Exposure lamp connector defective
- Dirty standard white plate
- Dirty scanner mirror or scanner mirror out of position
- SBU board defective
- SBU connector defective
- Lens block out of position

SC120: Scanner Home Position Error 1

Definition [B]

The scanner home position sensor does not detect the on condition during initialization or copying.

Possible Causes

- Scanner home position sensor defective
- Scanner motor defective
- MCU defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective

SC121: Scanner Home Position Error 2

Definition [B]

The scanner home position sensor does not detect the off condition during initialization or copying.

Possible Causes

- Scanner home position sensor defective
- Scanner drive motor defective
- MCU defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective
- Scanner drive wire, timing belt out of position

SC124: Scanner Motor Error 1

Definition [B]

The feedback signal from the scanner motor is not detected within 200 ms after the scanner motor turns on.

Possible Causes

- Scanner motor defective
- Poor connection of the connector for the feedback signal
- Poor connection of the connector for the scanner motor power line

SC125: Scanner Motor Error 2

Definition [B]

1) The scanner motor speed is less than 300 mm/s when the scanner home position sensor turns on.
2) The scanner motor stops before scanner home position when the scanner returns.

Possible Causes

- Scanner motor defective
- Large load on the scanner drive

SC126: Scanner Motor Error 3

Definition [B]

The scanner motor does not stop within 12 mm after the scanner home position sensor turns on when the scanner returns.

Possible Causes

- Scanner motor defective
- MCU defective

SC127: Scanner Motor Error 4

Definition [B]

The scanner motor rotates in the opposite direction from the signal from the MCU.

Possible Causes

- Scanner motor defective

SC128: Scanner Motor Error 5

Definition [B]

The scanner motor speed does not reach the target speed within a certain time after the scanner motor starts.

Possible Causes

- Scanner motor defective
- MCU defective
- Scanner drive mechanism defective

SC129: Scanner Motor Error 6

Definition [B]

The scanner motor speed is not controlled properly.

Possible Causes

- Scanner motor defective
- PSU defective
- Scanner unit defective

SC130: SBU Error

Definition [B]

The SICU does not receive the correct signal from the SBU.

Possible Causes

- SICU defective
- SBU defective
- Poor connection between SICU and SBU

SC300: Charge Corona Output Error 1

Definition [B]

A feedback voltage for the charge corona of more than 4.5 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC301: Charge Corona Output Error 2

Definition [B]

A feedback voltage for the charge corona of less than 1.5 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC303: Charge Grid Output Error 1

Definition [B]

A feedback voltage for the grid of more than 4.5 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC304: Charge Grid Output Error 2

Definition [B]

A feedback voltage for the grid of less than 1.0 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC305: Charge Corona Wire Cleaner Error 1

Definition [B]

The charge corona wire cleaner does not return to its home position.

Possible Causes

- Charge corona wire cleaner motor defective
- BCU defective

SC306: Charge Corona Wire Cleaner Error 2

Definition [D]

The charge corona wire cleaner motor connector is not connected.

Possible Causes

- Poor connection or disconnected charge corona wire cleaner motor connector

SC310: Drum Potential Sensor Error 1

Definition [D]

When calibrating the drum potential sensor during process control initial setting, the drum potential sensor output voltage is out of specification.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective

SC311: Drum Potential Sensor Error 2

Definition [D]

When calibrating the drum potential sensor during process control initial setting, the rate of change of drum potential sensor output with voltage on the drum is out of specification.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective

SC312: Drum Potential Sensor Error 3

Definition- [D]

When adjusting V_D for the unexposed drum during process control initial setting, –1,000 V is applied to the charge grid, but the drum potential sensor detects that V_D is more than –970 V.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum unit and the BCU
- Charge/bias/grid power pack defective
- Dirty or worn charge corona wire

SC313: Drum Potential Sensor Error 4

Definition [D]

When adjusting the drum potential (V_D) during process control initial setting, the drum potential sensor detects that V_D is more than V_G (grid voltage).

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective
- Dirty or worn charge corona wire

SC314: Drum Potential Sensor Error 5

Definition [D]

When adjusting the drum potential (V_H) for LD power adjustment during process control initial setting, the first time the V_H pattern is made, the drum potential sensor detects that V_H is more than 500 V.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- LDB defective

SC315: Drum Potential Sensor Error 6

Definition [D]

When adjusting V_D for the unexposed drum during process control initial setting, V_D does not reach –900 ± 20 V even if V_G has been adjusted 5 times.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective

SC316: Drum Potential Sensor Error 7

Definition [D]

When adjusting the drum potential (V_H) for half tone during process control initial setting, the drum potential sensor detects that V_H does not become –265 ± 20 V even though the LD power has been changed twenty times.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the IBCU
- BCU defective
- LDB defective
- Poor drum cleaning

SC321: Laser Writing Signal (F-gate) Error

Definition- [B]

The laser writing signal (F-gate) does not go to LOW for more than 15 seconds after the copy paper reaches the registration sensor.

Possible Causes

- SICU board defective
- Poor connection of the printer controller
- Printer controller defective

SC322: Laser Synchronization Error

Definition [B’]

The laser synchronization signal cannot be detected from the synchronization detector even if the laser diodes are activated.

Possible Causes

- Poor connection between the laser synchronization detector and the LDB
- Laser synchronization detector out of position
- Laser synchronization detector defective
- LDB defective
- SICU defective
- Front door safety switches defective

SC323: Excessive LD Drive Current

Definition [B’]

The LDB applies more than 110 mA to the LD.

Possible Causes

- LDB defective (not enough power, due to aging)
- Poor connection between the LDB and the SICU board
- High temperature of LD on LDB

SC335: Polygonal Mirror Motor Error 1

Definition [B]

The polygonal mirror motor does not reach its operating speed within 20 seconds after the polygonal mirror motor turns on, or the polygonal mirror motor speed is changed.

Possible Causes

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor drive board and the SICU board
- Polygonal mirror motor drive board defective
- SICU board defective

SC336: Polygonal Mirror Motor Error 2

Definition [B]

The SICU does not receive the stop signal from the polygonal mirror motor for more than 20 seconds after the polygonal mirror motor turns off.

Possible Causes

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor drive board and the SICU board
- Polygonal mirror motor drive board defective
- SICU board defective

SC337: Polygonal Mirror Motor Error 3

Definition [B]

The polygonal mirror motor status is changed even though no signal is sent from the SICU.

Possible Causes

- Polygonal mirror motor defective
- Electrical noise
- Polygonal mirror motor drive board defective
- SICU board defective

SC338: Polygonal Mirror Motor Error 4

Definition [B]

1) The polygonal mirror motor operating speed does not become stable for 20 seconds after the polygonal mirror motor is turned on, or the polygonal mirror motor speed is changed.
2) The stop signal from the polygonal mirror motor does not become stable for 20 seconds after the polygonal mirror motor is turned off.

Possible Causes

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor drive board and the SICU board
- Polygonal mirror motor drive board defective
- SICU board defective

SC340: TD Sensor Error 1

Definition [B]

The TD sensor output voltage is less than 0.5 V or more than 4.0 V 10 times consecutively during copying.

Possible Causes

- TD sensor defective
- Poor connection between the TD sensor and the BCU
- BCU defective
- Toner supply defective

SC341: TD Sensor Error 2

Definition [B]

One of the following TD sensor output voltages is detected during TD sensor initial setting.

1) Less than 2.5 V when the maximum PWM (255) is applied to the TD sensor.
2) 2.5 V or more when minimum PWM (0) is applied to the TD sensor.

Possible Causes

- TD sensor defective
- Poor connection between the TD sensor and the BCU
- BCU defective
- Toner supply defective

SC342: TD Sensor Error 3

Definition [B]

The TD sensor output voltage is not adjusted to 2.5 ± 0.1 V within 20 seconds during TD sensor initial setting.

Possible Causes

- TD sensor defective
- Poor connection between the TD sensor and the BCU
- BCU defective
- Toner supply defective

SC345: Development Bias Leak

Definition [B]

Maximum PWM for the development bias signal is applied 10 times consecutively.

Possible Causes

- Poor connection between the development bias terminal and the charge/bias/grid power pack
- Charge/bias/grid power pack

SC350: ID Sensor Error 1

Definition [D]

One of the following ID sensor output voltages was detected when checking the ID sensor pattern.

1) $V_{SP} \geq 2.5$ V
2) $V_{SP} = 0$ V

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid power pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC351: ID Sensor Error 2

Definition [D]

The following two conditions were detected at the same time when checking the ID sensor pattern.

1) $V_{SG} \leq 2.5$ V or $V_{SG} = 0$ V
2) The ID sensor output voltage is 5.0 V and the PWM signal input to the ID sensor is 0

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC352: ID Sensor Error 3

Definition [D]

The ID sensor pattern edge voltage is not at 2.5 V for 1.5 seconds during the ID sensor pattern check.

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC353: ID Sensor Error 4

Definition [D]

One of the following ID sensor output voltages is detected at ID sensor initialization.

1) V_{SG} < 4.0 V when the maximum PWM input (255) is applied to the ID sensor.
2) $V_{SG} \geq$ 4.0 V when the minimum PWM input (0) is applied to the ID sensor.

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC354: ID Sensor Error 5

Definition [D]

V_{SG} is not adjusted within the target (4.0 ± 0.2 V) within 20 seconds during V_{SG} checking.

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC355: ID Sensor Voltage Error

Definition [B]

The ID sensor voltage (V_P) exceeds 700 V, 10 times consecutively.

Possible Causes

- Drum potential sensor defective
- IO Board defective
- Poor connection of the drum unit connector
- LD defective
- Poor drum cleaning
- Dirty optics
- Drum wear

SC360: Hard Disk Drive Error 1

Definition [B]

The machine does not detect the connection signal from HDD 1 when the main switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC361: Hard Disk Drive Error 2

Definition [C]

The machine does not detect the connection signal from HDD 2 when the main switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC362: Hard Disk Drive Error 3

Definition [C]

The machine does not detect the connection signal from HDD 1 when the operation switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC363: Hard Disk Drive Error 4

Definition [C]

The machine does not detect the connection signal from HDD 2 when the operation switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC364: Hard Disk Drive Error 5

Definition [C]

The image data stored in HDD 1 cannot be output properly.

Possible Causes

- When this SC occurs only once, this problem will be solved after turning the main power switch off and on.
- When this SC occurs while performing SP4-911-1 (HDD 1 media check), it can be cured by doing SP4-911-2 (HDD 1 formatting).
- HDD 1 defective

SC365: Hard Disk Drive Error 6

Definition [C]

The image data stored in HDD 2 cannot be output properly.

Possible Causes

- When this SC occurs only once, this problem will be solved after turning the main power switch off and on.
- When this SC occurs while performing SP4-912-1 (HDD 2 media check), it can be cured by doing SP4-912-2 (HDD 2 formatting).
- HDD 2 defective

SC366: Hard Disk Drive Error 7

Definition [C]

The number of bad sectors in HDD 1 exceeds the maximum value.

Possible Causes

- NVRAM defective
- HDD 1 defective

SC367: Hard Disk Drive Error 8

Definition [C]

The number of bad sectors in HDD 2 exceeds the maximum value.

Possible Causes

- NVRAM defective
- HDD 2 defective

SC370, 371, 372, 373, 374, 375: IMAC (Image Compression IC) Error 1

Definition [B]

An error occurs during image processing in the IMAC, which handles image compression and image data transfer between the machine’s components.

Possible Causes

- SICU defective

SC376, 377: IMAC (Image Compression IC) Error 2

Definition [B]

While image data is transferred in tandem mode, an error occurs during image processing in the IMAC, which handles image compression and image data transfer between the machine’s components.

Possible Causes

- SICU defective

SC380, 381, 382, 383: Image Data Transfer Timeout

Definition [B]

The image data could not be transferred to the memory within 20 seconds.

Possible Causes

- SICU defective
- Printer controller defective
- SBU defective

SC384, 385: Image Data Transfer Timeout in Tandem Mode

Definition [B]

The image data could not be transferred to the memory within 20 seconds in tandem mode.

Possible Causes

- SICU defective
- Printer controller defective
- SBU defective
- Interface board defective

SC386, 387: Image Data Transfer Timeout (HDD)

Definition [B]

The image data could not be transferred to the HDD within 15 seconds.

Possible Causes

- SICU defective
- Printer controller defective
- SBU defective
- Interface board defective

SC390: Tandem Image Data Transfer Error

Definition [B]

The image data sent from the master does not match the data received by slave.

Possible Causes

- SICU defective
- Interface board defective
- Electrical noise

SC391, 392: Image Storage Address Error

Definition [B]

The SICU receives an image data output request signal for data that is not stored in memory.

Possible Causes

- SICU defective

SC400: Transfer Bias Roller Leak

Definition [B]

Abnormal feedback data from the transfer power pack is detected 6 times consecutively.

Possible Causes

- Transfer power pack defective
- Poor connection between the transfer current terminal and the transfer power pack.

SC401: Transfer roller open error

Definition [B]

The following conditions are detected at the same time 6 times consecutively.

1) The transfer bias roller feedback data is less than the minimum target.
2) Maximum PWM for the transfer bias roller is applied.

Possible Causes

- Transfer power pack defective
- Poor connection between the transfer current terminal and the transfer power pack.

SC430: Quenching Lamp Error

Definition [D]

When finishing the process control initial setting, the drum potential which is detected by the drum potential sensor is out of the normal range.

Possible Causes

- Quenching lamp defective
- Poor connection between quenching lamp and charge/bias/grid power pack

SC440: Drum Motor Lock

Definition [B]

The drum motor lock signal is longer than 2 seconds while the drum motor is on.

Possible Causes

- Too much load on the drive mechanism
- Drum motor defective
- Poor drum motor connector connection
- BCU defective

SC441: Development Motor Lock

Definition [B]

The development motor lock signal is longer than 2 seconds while the development motor is on.

Possible Causes

- Too much load on the drive mechanism
- Development motor defective
- Poor development motor connector connection
- BCU defective

SC491: Polygonal Mirror Motor Cooling Fan Motor Lock

Definition [B]

The polygonal mirror motor cooling fan motor lock signal is longer than 5 seconds while the polygonal mirror motor cooling fan motor is on.

Possible Causes

- Too much load on the drive mechanism
- Polygonal mirror motor cooling fan motor defective

SC495: Toner Bottle Unit Error

Definition [B]

The toner hopper sensor cannot detect toner even if the toner supply coil clutch turns on for 2 seconds x 10 times during toner supply during copying.

Possible Causes

- Toner supply motor defective
- Toner supply coil clutch defective
- Toner supply motor connector connection
- Toner supply coil clutch connector connection
- Toner near-end sensor (in the toner bank) defective
- Toner hopper sensor defective
- Toner clogged in the supply system

SC496: Toner Collection Bottle Error

Definition [B]

The toner collection bottle sensor remains off for 3 seconds.

Possible Causes

- No toner collection bottle
- Toner collection bottle sensor defective

SC501: 1st Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the 1st tray.

1) The 1st lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The 1st lift sensor is already activated when the 1st tray is placed in the machine.

Possible Causes

- 1st lift sensor defective
- 1st tray lift motor defective
- Poor 1st pick-up solenoid connection
- Poor 1st tray lift motor connection

SC502: 2nd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the 2nd tray.

1) The 2nd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The 2nd lift sensor is already activated when the 2nd tray is placed in the machine.

Possible Causes

- 2nd lift sensor defective
- 2nd tray lift motor defective
- Poor 2nd pick-up solenoid connection
- Poor 2nd tray lift motor connection

SC503: 3rd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the 3rd tray.

1) The 3rd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The 3rd lift sensor is already activated when the 3rd tray is placed in the machine.

Possible Causes

- 3rd lift sensor defective
- 3rd tray lift motor defective
- Poor 3rd pick-up solenoid connection
- Poor 3rd tray lift motor connection

SC504: LCT 1st Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the LCT 1st tray.

1) The LCT 1st lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The LCT 1st lift sensor is already activated when the LCT 1st tray is placed in the machine.

Possible Causes

- LCT 1st lift sensor defective
- LCT 1st tray lift motor defective
- Poor LCT 1st pick-up solenoid connection
- Poor LCT 1st tray lift motor connection

SC505: LCT 2nd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the LCT 2nd tray.

1) The LCT 2nd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The LCT 2nd lift sensor is already activated when the LCT 2nd tray is placed in the machine.

Possible Causes

- LCT 2nd lift sensor defective
- LCT 2nd tray lift motor defective
- Poor LCT 2nd pick-up solenoid connection
- Poor LCT 2nd tray lift motor connection

SC506: LCT 3rd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the LCT 3rd tray.

1) The LCT 3rd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The LCT 3rd lift sensor is already activated when the LCT 3rd tray is placed in the machine.

Possible Causes

- LCT 3rd lift sensor defective
- LCT 3rd tray lift motor defective
- Poor LCT 3rd pick-up solenoid connection
- Poor LCT 3rd tray lift motor connection

SC510: Paper Feed Motor Lock

Definition [B]

A paper feed motor lock signal is detected for more than 50 ms during rotation.

Possible Causes

- Paper feed motor defective
- Too much load on the drive mechanism
- Poor paper feed motor connector connection

SC511: LCT Motor Lock (Optional LCT)

Definition [B]

An LCT motor lock signal is detected for more than 50 ms during rotation.

Possible Causes

- LCT motor defective
- Too much load on the drive mechanism
- Poor LCT motor connector connection

SC515: Tandem Rear Fence Drive Motor Error

Definition [C]

One of the following conditions is detected in the tandem tray.

1) The rear fence return sensor and the rear fence HP sensor are on at the same time.
2) It takes 10 seconds or more for the rear fence return sensor to detect the on condition after the rear fence drive motor starts.
3) It takes 10 seconds or more for the rear fence HP sensor to detect the on condition after this fence starts moving to the home position.

Possible Causes

- Rear fence drive motor defective
- Too much load on the drive mechanism
- Poor motor connector connection

SC520: Jogger Motor Error 1

Definition [C]

When the jogger fence moves to the home position, the jogger HP sensor does not turn on even if the jogger fence motor has moved the jogger fence 153.5 mm.

Possible Causes

- Jogger fence motor defective
- Too much load on the drive mechanism
- Poor motor connector connection

SC521: Duplex Jogger Motor Error 2

Definition [C]

When the jogger fence moves from the home position, the jogger fence HP sensor does not turn off even if the jogger motor has moved the jogger fence 153.5 mm.

Possible Causes

- Jogger fence motor defective
- Too much load on the drive mechanism
- Poor motor connector connection

SC531: Fusing/Duplex Motor Lock

Definition [B]

A fusing/duplex motor lock signal is detected for more than 2 seconds during rotation.

Possible Causes

- Fusing/duplex motor defective
- Too much load on the drive mechanism
- Poor fusing/duplex motor connector connection
- BCU defective
- Front door safety switches defective

SC532: Relay Motor Lock

Definition [C]

A relay motor lock signal is detected for more than 2 seconds during rotation.

Possible Causes

- Relay motor defective
- Too much load on the drive mechanism
- Poor relay motor connector connection
- BCU defective

SC541: Fusing Thermistor Open

Definition [A]

The fusing temperature detected by the thermistor was below 7°C for 15 seconds.

Possible Causes

- Fusing thermistor defective or out of position
- Poor thermistor terminal connection

SC542: Fusing Temperature Warming-up Error

Definition [A]

The fusing temperature does not reach the fusing standby temperature within 6 minutes after the main power switch is turned on, or after the front doors are closed.

Possible Causes

- Fusing thermistor defective or out of position
- Fusing lamp open
- Fusing thermofuse open
- BCU defective
- AC drive board defective
- Poor fusing unit connection

SC543: Fusing Overheat Error 1

Definition [A]

A fusing temperature of over 220°C is detected for 5 seconds by the fusing thermistor.

Possible Causes

- Fusing thermistor defective
- BCU defective

SC544: Fusing Overheat Error 2

Definition [A]

The fusing temperature monitoring circuit defects abnormal fusing temperature.

Possible Causes

- Fusing thermistor defective
- BCU defective

SC545: Fusing Overheat Error 3

Definition [A]

The fusing lamp stays on at full power for 45 seconds while in the stand-by condition after warming-up is completed.

Possible Causes

- Fusing thermistor out of position

SC546: Fusing Ready Temperature Malfunction

Definition [A]

The fusing temperature twice consecutively is detected 20°C lower or 20°C higher than the temperature 1 second earlier.

Possible Causes

- Poor thermistor connector connection
- Poor fusing unit connection

SC547: Zero Cross Signal Malfunction

Definition [A]

When one of the following conditions is detected 10 times consecutively.

1) More than 66 or fewer than 45 zero-cross signals in 500 ms.
2) An interval between zero-cross signals shorter than 7.5 ms is detected 3 times in 500 ms.

Possible Causes

- Noise on the ac power line

SC550: Oil Supply/Cleaning Web End

Definition [A]

The oil supply/cleaning web end sensor stays on for 500 ms after the oil supply/web end motor starts.

Possible Causes

- Oil supply/cleaning web end
- Oil supply/cleaning web motor defective

SC591: Toner Supply Motor Lock

Definition [B]

The toner supply motor sensor status does not change for 1 second while the toner supply motor is energized.

Possible Causes

- Toner supply motor defective
- Toner supply motor sensor defective
- BCU defective

SC592: Toner Bank Motor Error

Definition [B]

The BCU receives an abnormal signal from the toner bank motor.

Possible Causes

- Toner bank motor defective
- Too much load on the drive mechanism
- BCU defective

SC601: Communication Error Between SICU and SBU

Definition [B’]

The SICU cannot communicate with the SBU board properly.

Possible Causes

- Poor connection between the SICU and SBU
- SBU defective
- SICU defective

SC602: Communication Error Between SICU and HDD Controller

Definition [B]

The SICU cannot communicate with the HDD controller properly.

Possible Causes

- Poor connection between the SICU board and HDD
- SICU board defective

SC620: Communication Error between BCU and ADF 1

Definition [B’]

The TXD and RXD signals between BCU and ADF main board do not stabilize.

Possible Causes

- Poor connection between the BCU board and the ADF main board
- Noise on interface cable

SC621: Communication Error between BCU and ADF 2

Definition [B’]

The TXD and RXD signals between BCU and ADF main board do not stabilize.

Possible Causes

- Poor connection between the BCU board and the ADF main board
- ADF main board defective
- BCU board defective

SC622: Communication Error between BCU and ADF 3

Definition- [B’]

Software error after abnormal user operation.

Possible Causes

- Software error

SC625, 626: Communication Error between BCU and Finisher

Definition [B]

The BCU cannot communicate with the finisher properly.

Possible Causes

- Poor connection between the BCU board and the finisher main board
- Finisher main board defective
- BCU board defective
- Noise on the interface cable

SC630: CSS (RSS) Communication Error between Line Adapter and CSS Center

- Japan only

SC640: Communication Error between SICU and BCU (CH1) 1

Definition [B]

The SICU cannot communicate with the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC641: Communication Error between SICU and BCU (CH1) 2

Definition [A]

The BCU cannot receive the data from the SICU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC642: Communication Error between SICU and BCU (CH1) 3

Definition [B]

The SICU cannot receive the data from the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC643: Communication Error between SICU and BCU (CH2) 1

Definition [B]

The SICU cannot communicate with the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC644: Communication Error between SICU and BCU (CH2) 2

Definition [A]

The BCU cannot receive the data from the SICU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC645: Communication Error between SICU and BCU (CH2) 3

Definition [B]

The SICU cannot receive the data from the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC646: SICU Error

Definition [B]

The BICU detects a defective SICU.

Possible Causes

- SICU board defective

SC650: Optional Counter Error 1

- Japanese version only

SC651: Optional Counter Error 2

- Japanese version only

SC652: Optional Counter Error 3

- Japanese version only

SC653: Optional Counter Error 4

- Japanese version only

Trouble-shooting

SC701: ADF Pick-up Roller Release Malfunction

Definition [B']

The pick-up roller HP sensor does not activate or de-activate when the pick-up motor turns on.

Possible Causes

- Pick-up roller HP sensor defective
- Pick-up motor defective
- ADF main board defective

SC702: ADF Feed-in Motor Error

Definition [B]

The feed-in motor does not turn properly.

Possible Causes

- Feed-in motor defective
- ADF main board defective
- Poor connection between the feed-in motor and ADF main board
- Too much load

SC703: ADF Transport Belt Motor Error

Definition [B]

The transport belt motor does not turn properly.

Possible Causes

- Transport belt motor defective
- ADF main board defective
- Poor connection between the transport motor and ADF main board
- Too much load

SC704: ADF Feed-out Motor Error

Definition [B']

The feed-out motor does not turn properly

Possible Causes

- Feed-out motor defective
- ADF main board defective
- Poor connection between the feed-out motor and ADF main board
- Too much load

SC705: ADF Original Table Lift Malfunction

Definition [B]

One of the following conditions was detected.

1) The bottom plate position sensor does not activate when the original table motor lifts the original table.
2) The bottom plate HP sensor does not activate when the bottom plate motor lowers the original table.

Possible Causes

- Bottom plate H.P sensor defective
- Bottom plate motor defective
- ADF main board defective
- Bottom plate position sensor defective

SC720: Finisher Lower Transport Motor Error

Definition [B']

The lower transport motor does not turn properly

Possible Causes

- Lower transport motor defective
- Finisher main board defective
- Poor connection between the lower transport motor and finisher main board
- Too much load

SC722: Finisher Jogger Motor Error

Definition [B]

1) The finisher jogger HP sensor remains de-activated for more than a certain time when returning to home position.
2) The finisher jogger HP sensor remains activated for more than a certain time when moving away from home position.

Possible Causes

- Jogger H.P sensor defective
- Jogger motor defective
- Poor connection between the jogger motor and finisher main board
- Too much load

SC724: Finisher Staple Hammer Motor Error

Definition [B]

Stapling does not finish within a certain time after the staple hammer motor turned on.

Possible Causes

- Staple hammer motor defective
- Staple jam
- Too much load on the stapling mechanism
- Poor hammer motor cable connection

SC725: Finisher Stack Feed-out Motor Error

Definition [B]

The stack feed-out belt HP sensor does not activate within a certain time after the stack feed-out motor turned on.

Possible Causes

- Stack feed-out HP sensor defective
- Stack feed-out motor defective
- Too much load
- Poor stack feed-out motor cable connection

SC726: Finisher Shift Motor Error

Definition [B]

The shift tray half-turn sensor status does not change within 1 second after the shift motor turns on.

Possible Causes

- Shift motor defective
- Shift tray half-turn sensor defective
- Too much load

SC727: Finisher Stapler Rotation Motor Error

Definition [B]

1) Stapler rotation does not finish within a certain time after the stapler rotation motor turned on.
2) The stapler does not return to its home position within a certain time after stapling finished.

Possible Causes

- Stapler rotation motor defective
- Poor stapler rotation motor connection
- Staple rotation HP sensor defective
- Too much load

SC729: Finisher Punch Motor Error

Definition [B]

The punch HP sensor is not activated within a certain time after the punch motor turned on.

Possible Causes

- Punch motor defective
- Punch HP sensor defective
- Poor punch motor connection

SC730: Finisher Stapler Motor Error

Definition [B]

1) The stapler HP sensor stays on for longer than normal when the stapler motor turns on to return the stapler to its home position.
2) The stapler HP sensor does not turn on within a certain time after the stapler motor turned on to move the stapler away from home position.

Possible Causes

- Stapler motor defective
- Stapler HP sensor defective
- Poor stapler motor connection

SC735: Finisher Paper Stack Plate Motor Error

Definition [B]

The stack plate HP sensor does not turn on within a certain time after the stack plate motor turned on.

Possible Causes

- Stack plate motor defective
- Stack plate HP sensor defective
- Poor stack plate motor connection

SC735: Finisher Exit Guide Motor Error

Definition [B]

The exit guide open sensor does not change within 750 mm after the exit guide motor is energized.

Possible Causes

- Exit guide motor defective
- Exit guide open sensor defective
- Poor exit guide motor connection

SC737: Full Finisher Staple Hopper

Definition [B]

The staple waste hopper is full.

Possible Causes

- Full staple waste hopper
- Staple waste hopper sensor defective

SC738: Finisher Shift Tray Lift Motor Error

Definition [B]

The stack height sensor does not activate within a certain time after the shift tray lift motor turned on.

Possible Causes

- Shift tray lift motor defective
- Too much load

SC900: Electrical Total Counter Error

Definition [A]

The total counter contains something that is not a number.

Possible Causes

- NVRAM defective

SC901: Mechanical Total Counter Error

Definition [B]

The mechanical total counter is disconnected.

Possible Causes

- Mechanical total counter defective

SC951: F-gate Signal Error

Definition [B’]

When the IPU has already received the F-gate signal (laser writing start trigger signal), the IPU receives another F-gate signal.

Possible Causes

- SICU defective

SC953: Scanner Image Setting Error

Definition [B']

The settings that are required for image processing using the scanner are not sent from the IPU.

Possible Causes

- Software defective

SC954: Printer Image Setting Error

Definition [B']

The settings that are required for image processing using the printer controller are not sent from the IPU.

Possible Causes

- Software defective

SC955: Memory Setting Error

Definition [B']

The settings that are required for image processing using the memory are not sent from the IPU.

Possible Causes

- Software defective

SC964: Printer Ready Error

Definition [B']

The print ready signal is not generated for more than 17 seconds after the IPU received the print start signal.

Possible Causes

- Software defective

SC970: Scanner Ready Error

Definition [B']

The scan ready signal is not generated by the MCU for more than 10 seconds after the read start signal is sent to the MCU.

Possible Causes

- Poor connection between SICU and MCU
- MCU software error

SC980: HDD Access Error

Definition [B]

Incorrect parameter sent to the HDD controller.

Possible Causes

- Software defective
- SICU defective

SC982: HDD Construction Error

Definition [B']

A HDD that does not have the correct specifications has been installed.

Possible Causes

- HDD defective
- Incorrect HDD type

SC984: HDD 1 Data Transfer Error 1

Definition [B']

The data transfer from the DRAM to HDD 1 is not completed within 15 seconds.

Possible Causes

- HDD 1 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 1

SC985: HDD 2 Data Transfer Error 2

Definition [B']

The data transfer from the DRAM to HDD 2 is not completed within 15 seconds.

Possible Causes

- HDD 2 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 2

SC986: HDD 1 Data Transfer Error 2

Definition [B']

The data transfer from HDD 1 to the DRAM is not completed within 15 seconds.

Possible Causes

- HDD 1 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 1

SC987: HDD 2 Data Transfer Error 2

Definition [B']

The data transfer from HDD 2 to the DRAM is not completed within 15 seconds.

Possible Causes

- HDD 2 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 2

SC990: Software Performance Error

Definition [B']

The software performs an unexpected function.

Possible Causes

- Software defective

7.2 ELECTRICAL COMPONENT DEFECTS

7.2.1 SENSORS

Component (Symbol)	CN	Condition	Symptom
Scanner Home Position (S1)	CN555-2 (MCU)	Stays On	SC121 is displayed.
		Stays Off	SC120 is displayed.
Original Width (S2)	CN555-6.7.8 (MCU)	Stays On	The CPU cannot detect the original size properly. APS and ARE (Auto Reduce/Enlarge) do not function correctly.
		Stays Off	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
Original Length 1 (S3)	CN555-11 (MCU)	Stays On	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
		Stays Off	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
Original Length 2 (S4)	CN555-14 (MCU)	Stays On	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
		Stays Off	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
Drum Potential Sensor (S5)	CN609-10 (BCU)	Open	The machine quits auto process control and goes to auto process control off mode.
		Shorted	
Toner Density (S6)	CN610-B6 (BCU)	Stays On	SC340 is displayed.
		Stays Off	SC340 is displayed.
Image Density (S7)	CN609-5 (BUC)	Open	SC350 is displayed after copying.
		Shorted	SC350 is displayed after copying.
Toner Supply Motor (S9)	CN613-B8 (BCU)	Stays On	SC591 is displayed.
		Stays Off	
Upper Toner Bottle (S10)	CN623-A2 (BCU)	Stays On	A toner bottle is detected in the upper position even if there is no toner bottle there.
		Stays Off	The toner bottle in the upper position is not detected.
Lower Toner Bottle (S11)	CN623-B2 (BCU)	Stays On	A toner bottle is detected in the lower position even if there is no toner bottle there.
		Stays Off	The toner bottle in the lower position is not detected.
Upper Bottle Inner Cap (S12)	CN623-A5 (BCU)	Stays On	Normally, the machine works properly because the current status of the toner bottle cap is stored in the memory.
		Stays Off	

Component (Symbol)	CN	Condition	Symptom
Lower Bottle Inner Cap (S13)	CN623-B5 (BCU)	Stays On	Normally, the machine works properly because the current status of the toner bottle cap is stored in the memory.
		Stays Off	
Toner Near End (S16)	CN610-B9 (BCU)	Open	“Toner End” is displayed even if there is enough toner in the toner entrance tank.
		Shorted	“Toner End” is not displayed even if there is no toner in the toner entrance tank.
Toner Collection Bottle (S14)	CN624-11 (BCU)	Stays On	The machine cannot detect a no toner collection bottle condition.
		Stays Off	SC496 is displayed.
Toner Overflow (S15)	CN624-8 (BCU)	Stays On	“Waste Toner Bottle Full” is detected and printing is disabled.
		Stays Off	“Waste Toner Bottle Full” is detected and printing is disabled.
Toner Hopper (S8)	CN624-14 (BCU)	Stays On	SC495 is displayed.
		Stays Off	Toner is not supplied to the toner hopper, and toner end is detected even if there is enough toner in the toner bottle.
1st Paper Feed (S17)	CN514-2 (IOB)	Stays On	“Paper Jam” is displayed even if there is no paper.
		Stays Off	“Paper Jam” is displayed whenever a copy is made.
2nd Paper Feed (S18)	CN511-A2 (IOB)	Stays On	“Paper Jam” is displayed even if there is no paper.
		Stays Off	“Paper Jam” is displayed whenever a copy is made.
3rd Paper Feed (S19)	CN511-B2 (IOB)	Stays On	“Paper Jam” is displayed even if there is no paper.
		Stays Off	“Paper Jam” is displayed whenever a copy is made.
1st Tray Lift (S20)	CN514-8 (IOB)	Stays On	SC501 is displayed.
		Stays Off	SC501 is displayed.
2nd Tray Lift (S21)	CN511-A8 (IOB)	Stays On	SC502 is displayed.
		Stays Off	SC502 is displayed.
3rd Tray Lift (S22)	CN511-B8 (IOB)	Stays On	SC503 is displayed.
		Stays Off	SC503 is displayed.
1st Paper End (S23)	CN514-5 (IOB)	Stays On	“Paper End” is displayed even if there is paper in the 1st paper tray.
		Stays Off	“Paper End” is not displayed even if there is no paper in the 1st paper tray.
2nd Paper End (S24)	CN511-A5 (IOB)	Stays On	“Paper End” is displayed even if there is paper in the 2nd tray.
		Stays Off	“Paper End” is not displayed even if there is no paper in the 2nd tray.

Component (Symbol)	CN	Condition	Symptom
3rd Paper End (S25)	CN511-B5 (IOB)	Stays On	"Paper End" is displayed even if there is paper in the 3rd tray.
		Stays Off	"Paper End" is not displayed even if there is no paper in the 3rd tray.
Rear Fence HP (S26)	CN515-5 (IOB)	Stays On	SC515 is displayed
		Stays Off	SC515 is displayed
Rear Fence Return (S27)	CN515-9 (IOB)	Stays On	SC515 is displayed
		Stays Off	SC515 is displayed
Front Side Fence Open (S28)	CN516-A3 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Front Side Fence Closed (S29)	CN516-A6 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Rear Side Fence Open (S30)	CN516-A9 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Rear Side Fence Closed (S31)	CN516-A12 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Base Plate Down (S32)	CN516-B13 (IOB)	Stays On	The bottom plate lift lever locks at the lowest position.
		Stays Off	The bottom plate is not lowered when paper on the left tray needs to be moved to the right tray and paper is set in the incorrect position.
1st Tray Paper Height 1 (S33)	CN516-B10 (IOB)	Stays On	"Paper Near End" is not displayed even if the tray is almost empty.
		Stays Off	"Paper Near End" is displayed even if there is enough paper in the paper tray.
1st Tray Paper Height 2 (S34)	CN516-B8 (IOB)	Stays On	"Paper Near End" is not displayed even if the tray is almost empty.
		Stays Off	"Paper Near End" is displayed even if there is enough paper in the paper tray.
1st Tray Paper Height 3 (S35)	CN516-B7 (IOB)	Stays On	"Paper Near End" is not displayed even if the tray is almost empty.
		Stays Off	"Paper Near End" is displayed even if there is enough paper in the paper tray.
1st Tray Paper Height 4 (S36)	CN516-B6 (IOB)	Stays On	"Paper Near End" is not displayed even if the tray is almost empty.
		Stays Off	"Paper Near End" is displayed even if there is enough paper in the paper tray.
Left 1st Tray Paper (S37)	CN516-B10 (IOB)	Stays On	The rear fence moves back and forth continuously.
		Stays Off	The paper in the left tray is not moved to the right tray.

Component (Symbol)	**CN**	**Condition**	**Symptom**
Right 1st Tray Paper (S38)	CN515-12 (IOB)	Stays On	"Paper Jam" is displayed after the last sheet is fed from the right 1st tray.
		Stays Off	Paper end is detected in the 1st tray even if there is paper in the tray. If there is paper in the left tray, the rear plate locks and SC515 is displayed.
Inverter Tray Paper (S39)	CN611-A3 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Duplex Entrance (S40)	CN611-A11 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Duplex Transport 1 (S41)	CN611-A5 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.
Duplex Transport 2 (S42)	CN611-A7 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.
Duplex Transport 3 (S43)	CN611-A9 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.
Duplex Jogger HP (S44)	CN611-A10 (BCU)	Stays On	SC521 is displayed.
		Stays Off	SC520 is displayed.
LCT Relay (S45)	CN602-A7 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Relay (S46)	CN602-A4 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Registration (S47)	CN602-A9 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Guide Plate Position (S48)	CN602-4 (BCU)	Stays On	A paper jam will occur when the guide plate is opened.
		Stays Off	"Guide Plate Close" is displayed after the front door is closed even if the guide plate is closed.

Component (Symbol)	CN	Condition	Symptom
Oil Supply/ Cleaning Web End (S49)	CN603-A6 (BCU)	Stays On	Cleaning web end is not detected.
		Stays Off	SC550 is displayed.
Fusing Exit (S50)	CN602-A11 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.
Exit (S51)	CN602-A14 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.

NOTE: For a photointerrupter, "Stays on" means that the actuator is in the sensor.

7.2.2 SWITCHES

Component (Symbol)	CN	Condition	Symptom
Main Power (SW1)	CN703-1, 3 (PSU)	Open	The machine does not turn on.
		Shorted	The machine does not turn off.
Right Front Door Safety 1 (SW2)	CN625-1 (BCU)	Open	The door open indicator does not turn off.
		Shorted	The door open condition is not detected.
Right Front Door Safety 2 (SW3)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Right Front Door Safety 3 (SW4)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Right Front Door Safety 4 (SW5)	CN715-2 (PSU)	Open	SC531 is displayed.
		Shorted	
Left Front Door Safety 1 (SW6)	CN625-3 (BUC)	Open	The door open indicator does not turn off.
		Shorted	The door open condition is not detected.
Left Front Door Safety 2 (SW7)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Left Front Door Safety 3 (SW8)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Left Front Door Safety 4 (SW9)	CN715-2 (PSU)	Open	SC531 is displayed.
		Shorted	
2nd Tray Paper Size (SW10)	CN510-A8, A9, A10, A11, A12	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
		Shorted	
3rd Tray Paper Size (SW11)	CN510-A2, A3, A4, A5, A6	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
		Shorted	

7.3 BLOWN FUSE CONDITIONS

Fuses are not used for the output lines from the PSU. An electronic current cut-off method is used instead.

The PSU consists of three converters; 1st converter, 2nd converter, and Energy saver converter. Each converter has an LED which indicates the status of the converter.

LED No.	**LED 1**	**LED 2**	**LED 3**
Converter	Energy saver	1st Converter	2nd Converter
Output	Vcc1	Vcc2, Vmm	Vaa, Vca, Vcb
In Stand-by Condition	On	On	On
In Energy Saver Mode	On	Off	Off
LED status when a converter is defective			
Energy saver	Off	Off	Off
1st	On	Off	Off
2nd	On	On	Off

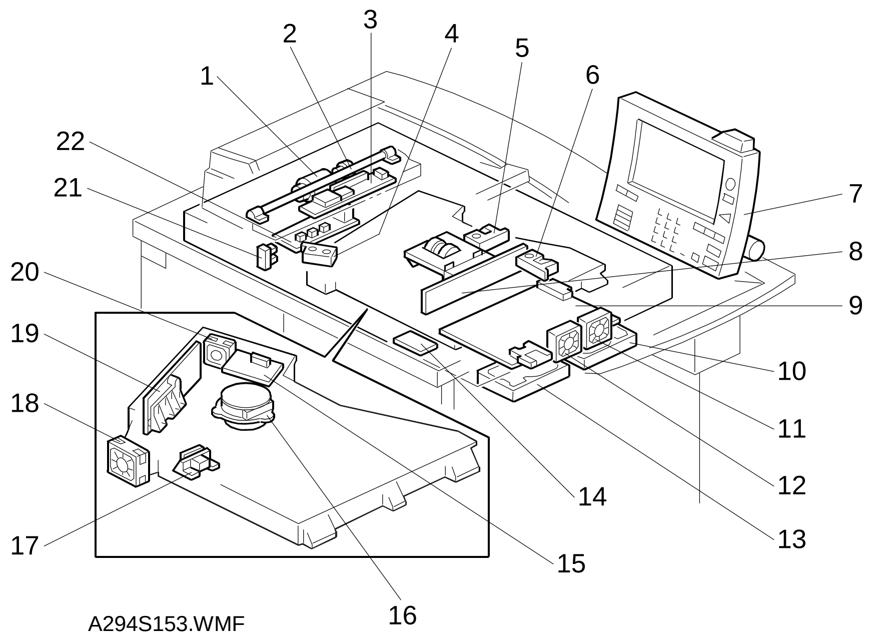
When the 1st converter is defective, the output of the 2nd converter is also stopped. When the energy saver converter is defective, all the outputs are stopped.

There is a circuit breaker CB1 on the PSU which cuts all the power from the PSU when excess current flows.

Additionally, there is a fuse only for the AC input line of the energy saver converter.

Fuse	**Symptom when turning on the main power switch**
Power Supply Board	
FU404	No response

COPIER (A294) ELECTRICAL COMPONENT LAYOUT (1/2)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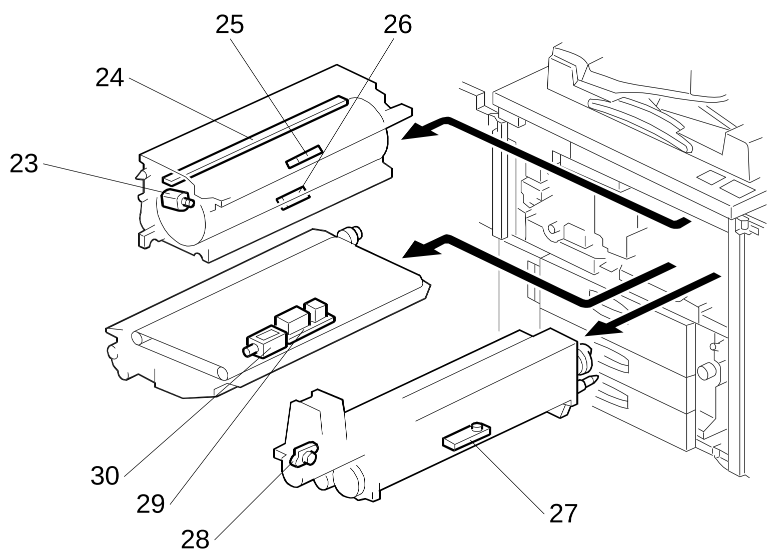
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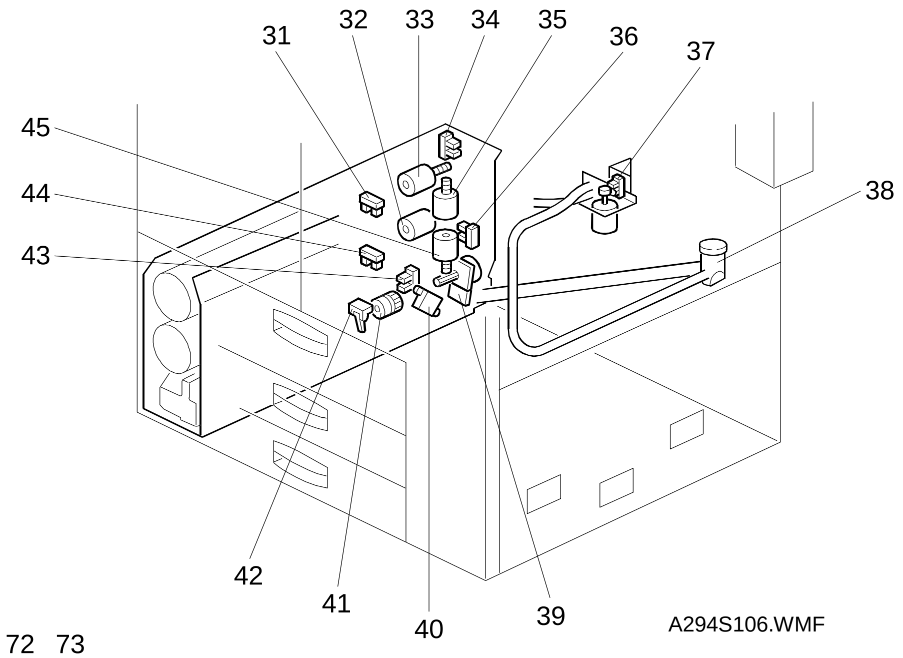
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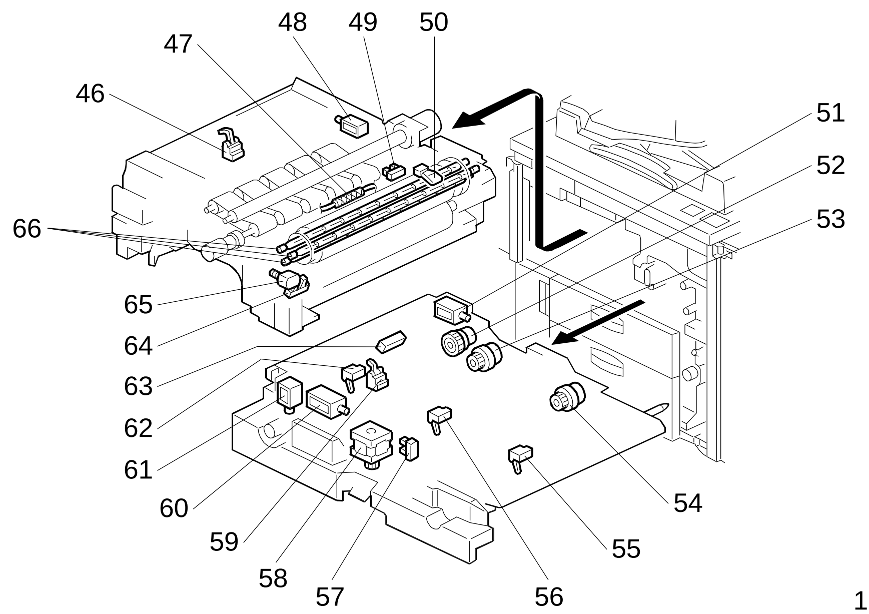
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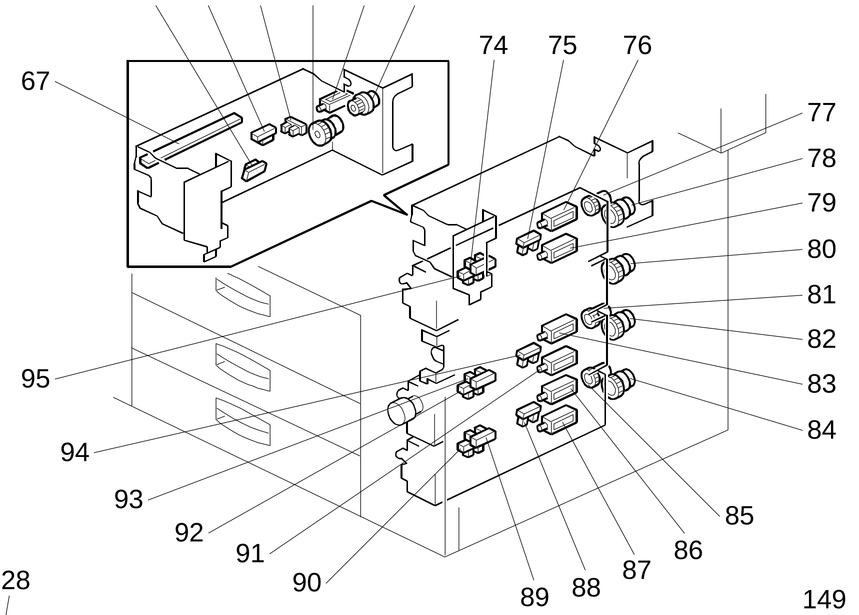
A294S105.WMF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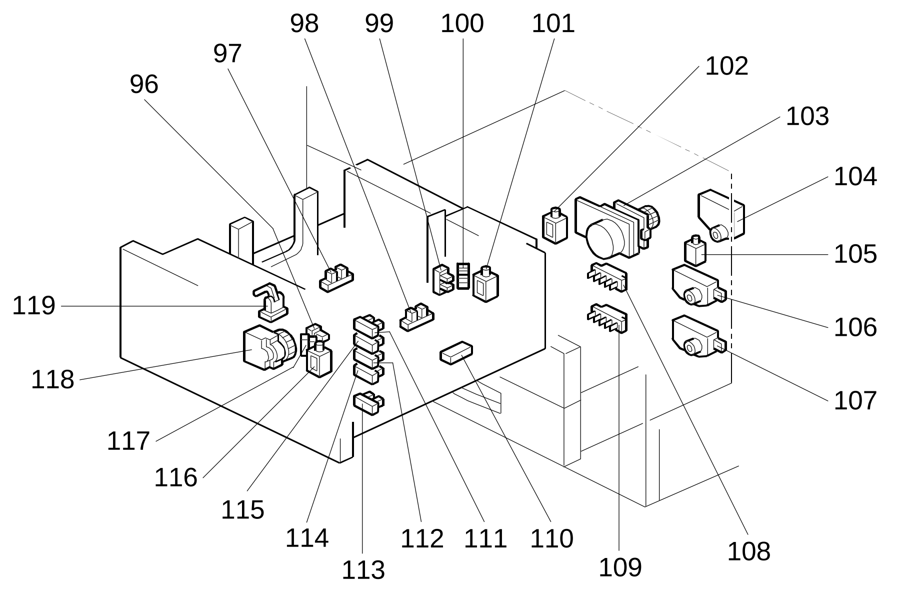
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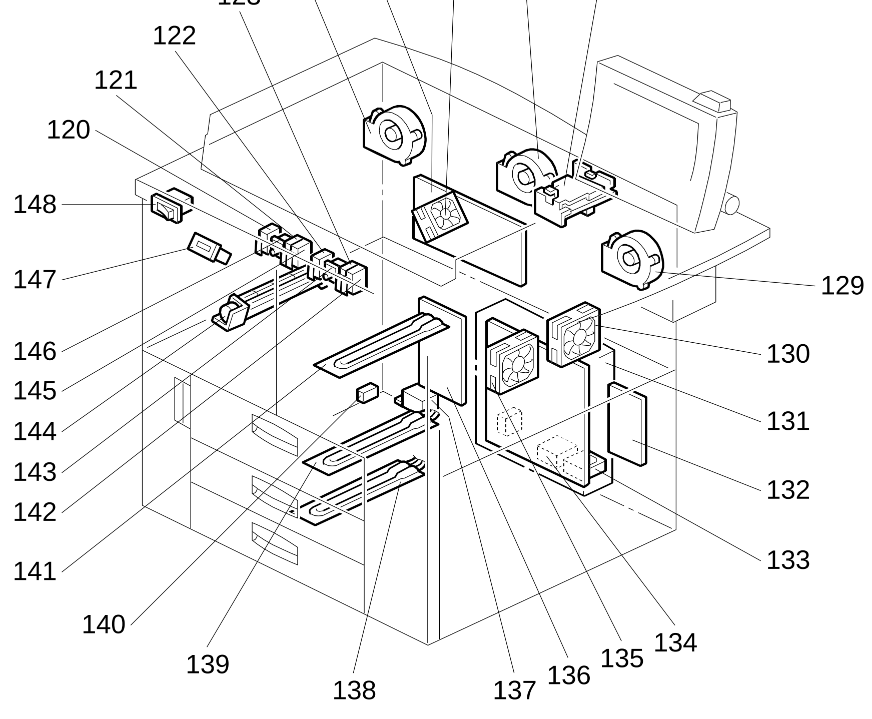
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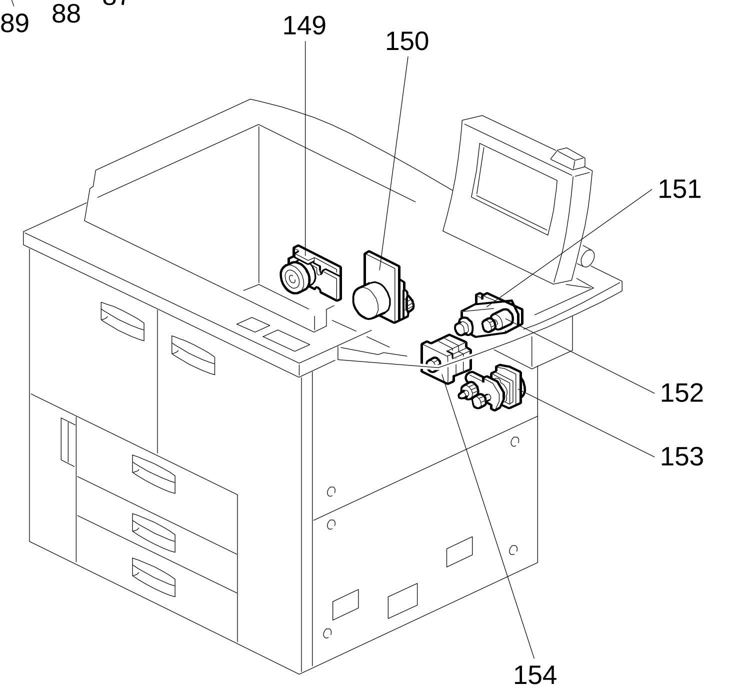
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A294S110.WMF

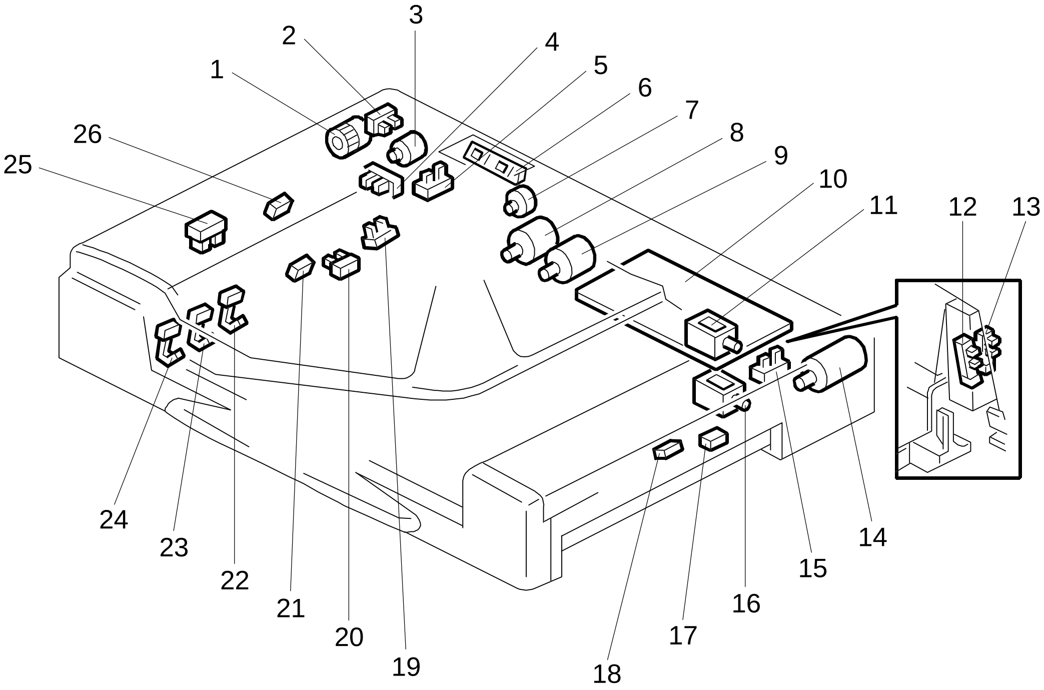
COPIER (A294) ELECTRICAL COMPONENT LAYOUT (2/2)

Symbol	Index No.	Description	P to P
Motors			
M1	1	Scanner	1-J21
M2	16	Polygonal Mirror	2-K22
M3	150	Drum	1-J11
M4	151	Development	1-J11
M5	38	Toner Supply	1-I10
M6	39	Toner Bank	1-I13
M7	35	Upper Toner Bottle	1-I15
M8	33	Upper Bottle Cap	1-I15
M9	45	Lower Toner Bottle	1-I14
M10	32	Lower Bottle Cap	1-P16
M11	23	Charge Corona Wire Cleaner	1-J12
M12	149	Fusing/Duplex	1-N7
M13	103	Paper Feed	1-L22
M14	153	Relay	1-N2
M15	104	1st Tray Lift	1-M2
M16	106	2nd Tray Lift	1-M2
M17	107	3rd Tray Lift	1-M2
M18	154	Registration	1-N8
M19	65	Oil Supply/Cleaning Web	1-O13
M20	118	Rear Fence Drive	1-G2
M21	58	Jogger	1-O17
M22	12	Optics Cooling Fan	2-N12
M23	18	Polygonal Mirror Motor Cooling Fan	1-N9
M24	20	LDB Cooling Fan	2-O16
M25	11	SICU Cooling Fan	2-N12
M26	129	Drum Cooling Fan	1-N10
M27	135	Development Unit Cooling Fan 1	1-I10
M28	130	Development Unit Cooling Fan 2	1-I10
M29	126	Paper Cooling Pipe Fan	1-N11
M30	144	Duplex Cooling Fan	1-N11
M31	127	Exhaust Fan	1-N9
M32	124	Steam Removal Fan	1-N10
M33	133	PSU Cooling Fan 1	1-E13
M34	134	PSU Cooling Fan 2	1-E13
Sensors			
S1	21	Scanner HP	2-H21
S2	4	Original Width	2-H21
S3	5	Original Length 1	2-I21
S4	6	Original Length 2	2-I21
S5	25	Drum Potential	1-O15
S6	27	Toner Density (TD)	1-N9
S7	26	Image Density (ID)	1-O15
S8	28	Toner Hopper	1-N8
S9	37	Toner Supply Motor	1-I10
S10	31	Upper Toner Bottle	1-I15
S11	44	Lower Toner Bottle	1-I14
S12	34	Upper Bottle Inner Cap	1-I15
S13	36	Lower Bottle Inner Cap	1-I14
S14	42	Toner Collection Bottle	1-I13
S15	43	Toner Overflow	1-I13
S16	40	Toner Near End	1-I12
S17	95	1st Paper Feed	1-A2
S18	92	2nd Paper Feed	1-B2
S19	90	3rd Paper Feed	1-D2
S20	75	1st Tray Lift	1-B2
S21	94	2nd Tray Lift	1-C2
S22	88	3rd Tray Lift	1-D2
S23	74	1st Paper End	1-B2

Symbol	Index No.	Description	P to P
S24	93	2nd Paper End	1-C2
S25	89	3rd Paper End	1-D2
S26	97	Rear Fence HP	1-G2
S27	98	Rear Fence Return	1-G2
S28	117	Front Side Fence Open	1-H2
S29	96	Front Side Fence Closed	1-H2
S30	100	Rear Side Fence Open	1-I2
S31	99	Rear Side Fence Closed	1-I2
S32	113	Base Plate Down	1-K2
S33	111	1st Tray Paper Height 1	1-K2
S34	115	1st Tray Paper Height 2	1-J2
S35	112	1st Tray Paper Height 3	1-J2
S36	114	1st Tray Paper Height 4	1-J2
S37	119	Left 1st Tray Paper	1-G2
S38	110	Right 1st Tray Paper	1-I2
S39	59	Duplex Inverter	1-O20
S40	63	Duplex Entrance	1-O19
S41	62	Duplex Transport 1	1-O20
S42	56	Duplex Transport 2	1-O20
S43	55	Duplex Transport 3	1-O19
S44	57	Duplex Jogger HP	1-O19
S45	69	LCT Relay	1-K22
S46	68	Relay	1-K22
S47	67	Registration	1-K22
S48	70	Guide Plate Position	1-L22
S49	64	Oil Supply/Cleaning Web End	1-O13
S50	49	Fusing Exit	1-O12
S51	46	Exit	1-O12
Switches			
SW1	148	Main Power	1-C12
SW2	122	Right Front Door Safety 1	1-F13
SW3	143	Right Front Door Safety 2	1-D9
SW4	123	Right Front Door Safety 3	2-O16
SW5	142	Right Front Door Safety 4	2-P16
SW6	120	Left Front Door Safety 1	1-G13
SW7	146	Left Front Door Safety 2	1-D8
SW8	121	Left Front Door Safety 3	2-P15
SW9	145	Left Front Door Safety 4	2-O15
SW10	108	2nd Tray Paper Size	1-L2
SW11	109	3rd Tray Paper Size	1-K2
Solenoids			
SOL1	30	Transfer Belt Lift	1-O16
SOL2	76	1st Pick-up	1-B2
SOL3	83	2nd Pick-up	1-C2
SOL4	86	3rd Pick-up	1-D2
SOL5	79	1st Separation Roller	1-E2
SOL6	91	2nd Separation Roller	1-E2
SOL7	87	3rd Separation Roller	1-F2
SOL8	116	Front Side Fence	1-I2
SOL9	101	Rear Side Fence	1-I2
SOL10	105	Tandem Tray Connect	1-N2
SOL11	102	Left 1st Tray Lock	1-N2
SOL12	61	Duplex Inverter Gate	1-O18
SOL13	60	Reverse Roller	1-O18
SOL14	51	Inverter Guide Plate	1-O18
SOL15	72	Guide Plate	1-K22
SOL16	48	Inverter Gate	1-O12

Symbol	Index No.	Description	P to P
Magnetic Clutches			
MC1	41	Toner Supply Coil	1-I13
MC2	152	Toner Supply Roller	1-I11
MC3	77	1st Paper Feed	1-E2
MC4	81	2nd Paper Feed	1-E2
MC5	85	3rd Paper Feed	1-F2
MC6	52	Inverter Exit Roller	1-O18
MC7	53	Duplex Transport	1-O18
MC8	54	Duplex Feed	1-O18
MC9	78	1st Vertical Transport	1-E2
MC10	82	2nd Vertical Transport	1-F2
MC11	84	3rd Vertical Transport	1-F2
MC12	71	Upper Relay	1-L22
MC13	73	LCT Relay	1-J22
MC14	80	Lower Relay	1-N2
PCBs			
PCB1	125	BCU	1-L13
PCB2	9	SICU	2-F10
PCB3	131	PSU	1-D14
PCB4	132	IOB	1-B5
PCB5	8	SBU	2-E20
PCB6	22	MCU	2-G20
PCB7	3	Lamp Regulator	2-G21
PCB8	15	Polygonal Mirror Motor Control	2-K20
PCB9	19	LDB	2-N17
PCB10	136	AC Drive	1-B10
PCB11	7	Operation Panel	2-N9
PCB12	14	Operation Key	2-O11
Lamps			
L1	2	Exposure Lamp	2-G22
L2	66	Fusing Lamp 1	1-B8
L3	66	Fusing Lamp 2	1-B8
L4	66	Fusing Lamp 3	1-B8
L5	24	Quenching	1-P16
Power Packs			
PP1	128	Charge/bias/grid	1-N14
PP2	30	Transfer	1-O16
Others			
CB1	140	Circuit Breaker	1-A7
H1	—	Optics Anti-Condensation (option)	1-A13
H2	141	Drum (option)	1-A13
H3	139	Tray Heater 1 (option)	1-A12
H4	138	Tray Heater 2 (option)	1-A12
HDD1	13	HDD	2-F3
HDD2	10	HDD	2-J3
NF1	137	Noise Filter	1-A8
SD1	17	Laser Synchronization Detector	2-O15
TC1	147	Total Counter	1-N11
TF1	47	Fusing Thermofuse	1-B8
TH1	50	Fusing Thermistor	1-B7

ELECTRICAL COMPONENT LAYOUT (ADF: B301)

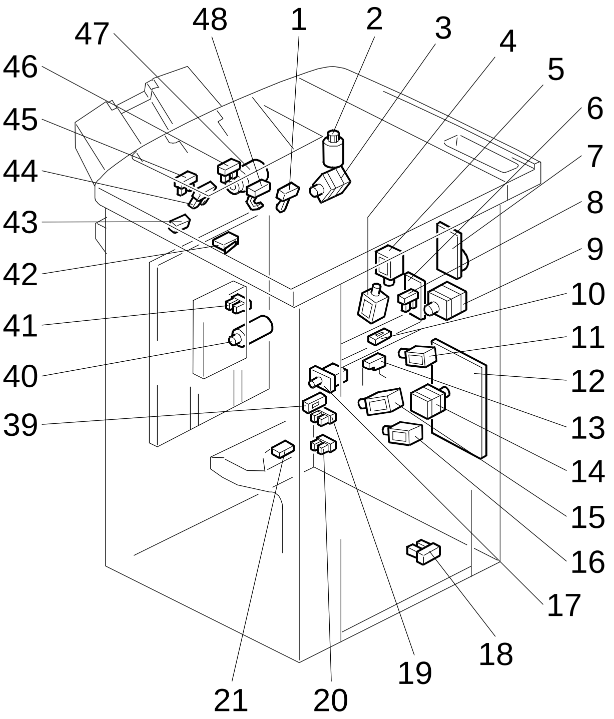


B301S108.WMF

Symbol	Index No.	Description	P to P
Motors			
M1	3	Pick-up	F1
M2	8	Feed-in	D1
M3	9	Transport	E1
M4	14	Feed-out	F1
M5	7	Bottom plate	G1
Sensors			
S1	12	APS Start	I6
S2	13	DF Position	H6
S3	19	Original Set	A6
S4	20	Bottom Plate HP	B6
S5	4	Bottom Plate Position	D6
S6	2	Pick-up Roller HP	D6
S7	26	Entrance	C7
S8	21	Registration	C6
S9	22	Original Width 1	E6
S10	23	Original Width 2	F6
S11	24	Original Width 3	F6
S12	25	Original Length	B6
S13	18	Exit	G6
S14	17	Inverter	G6
S15	5	Feed Cover	E6
S16	15	Exit Cover	H6
Solenoids			
SOL1	16	Exit Gate	H1
SOL2	11	Inverter Gate	I1

Symbol	Index No.	Description	P to P
Magnetic Clutches			
MC1	1	Feed-in	H1
PCBs			
PCB1	10	DF Main	J4
PCB2	6	DF Indicator	I1
PCB1	10	DF Main	J4
PCB2	6	DF Indicator	I1

ELECTRICAL COMPONENT LAYOUT (FINISHER: B302)



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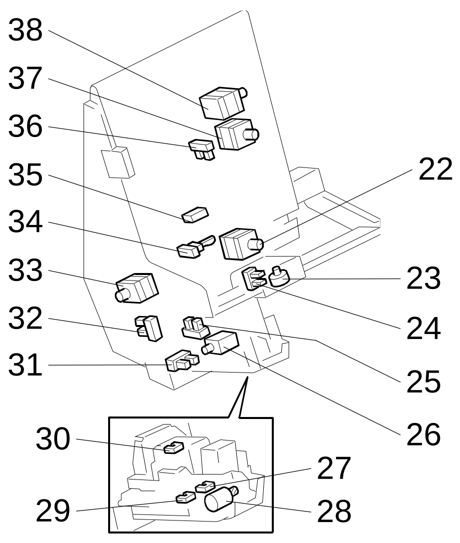
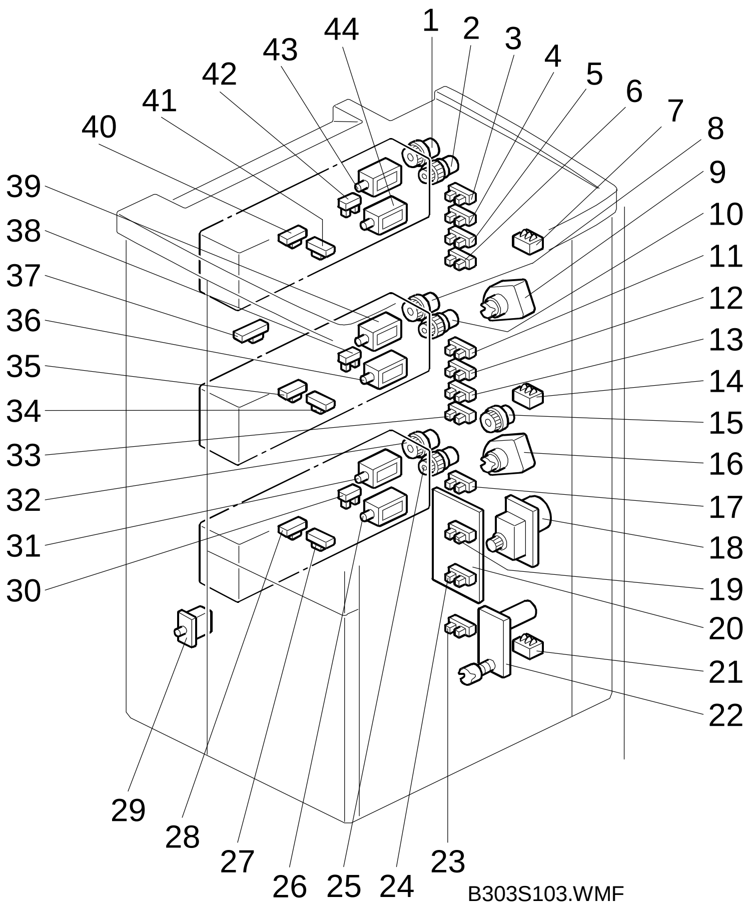


B302S502.WMF

Symbol	Index No.	Description	P to P
Motors			
M1	7	Upper Transport	A6
M2	14	Lower Transport	C6
M3	37	Jogger	F6
M4	23	Stack Plate	G6
M5	22	Stapler	G6
M6	33	Stapler Rotation	I6
M7	28	Staple Hammer	I6
M8	38	Stack Feed-out	F6
M9	47	Exit Guide	C6
M10	3	Shift Tray Exit	B6
M11	40	Shift	D6
M12	2	Shift Tray Lift	C6
M13	9	Punch	J2
Sensors			
S1	10	Entrance	B2
S2	39	Pre-stack	E2
S3	21	Stapler Tray Entrance	F2
S4	36	Jogger Fence HP	F2
S5	35	Stapler Tray Paper	F2
S6	24	Stack Plate HP	G2
S7	32	Stapler HP	G2
S8	31	Stapler Rotation HP	G2
S9	30	Staple Hammer HP	J2
S10	29	Cartridge Set	J2
S11	27	Staple End	J2
S12	18	Staple Waste Hopper	I2
S13	34	Stack Feed-out Belt HP	F2
S14	46	Exit Guide Open	C2

Symbol	Index No.	Description	P to P
S15	43	Shift Tray Exit	C2
S16	45	Stack Height 1	D2
S17	44	Stack Height 2	D2
S18	1	Upper Tray Exit	C2
S19	48	Upper Tray Paper Limit	C2
S20	41	Shift Tray Half-turn	D2
S21	19	Shift Tray Lower Limit 1	E2
S22	20	Shift Tray Lower Limit 2	E2
S23	13	Punch Waste Hopper	J2
S24	8	Punch HP	I2
S25	25	Stapler Return	I2
Switches			
SW1	17	Front Door Safety	B2
SW2	42	Shift Tray Upper Limit	C6
Solenoids			
SOL1	4	Stapler Junction Gate	D6
SOL2	5	Tray Junction Gate	D6
SOL3	11	Pre-stack Junction Gate	E6
SOL4	16	Pre-stack Paper Stopper	E6
SOL5	15	Positioning Roller	E6
SOL6	26	Stapler Return	I6
PCBs			
PCB1	12	Main	K4
PCB2	6	Punch	J3

ELECTRICAL COMPONENT LAYOUT (LCT: B303)

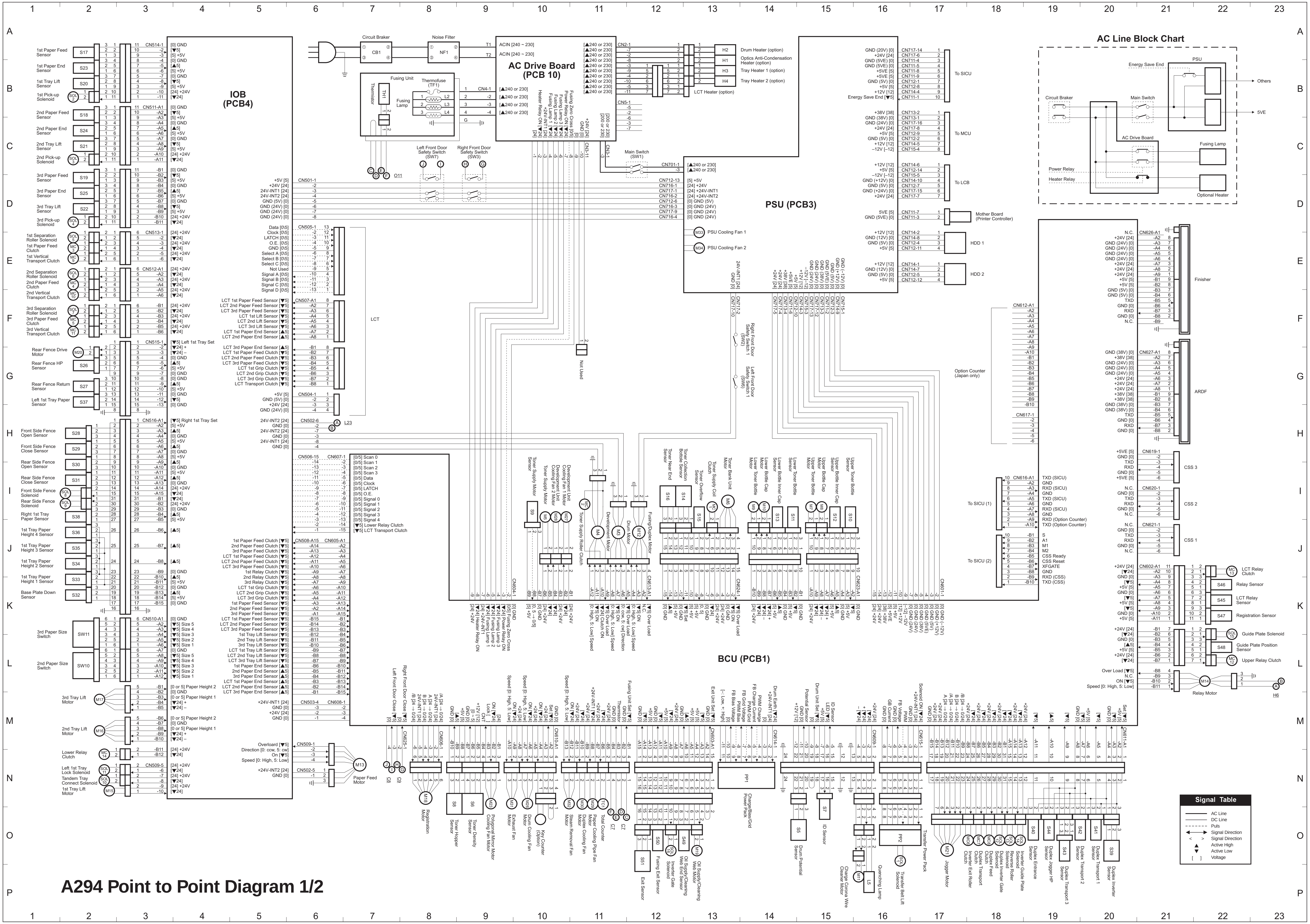


B303S103.WMF

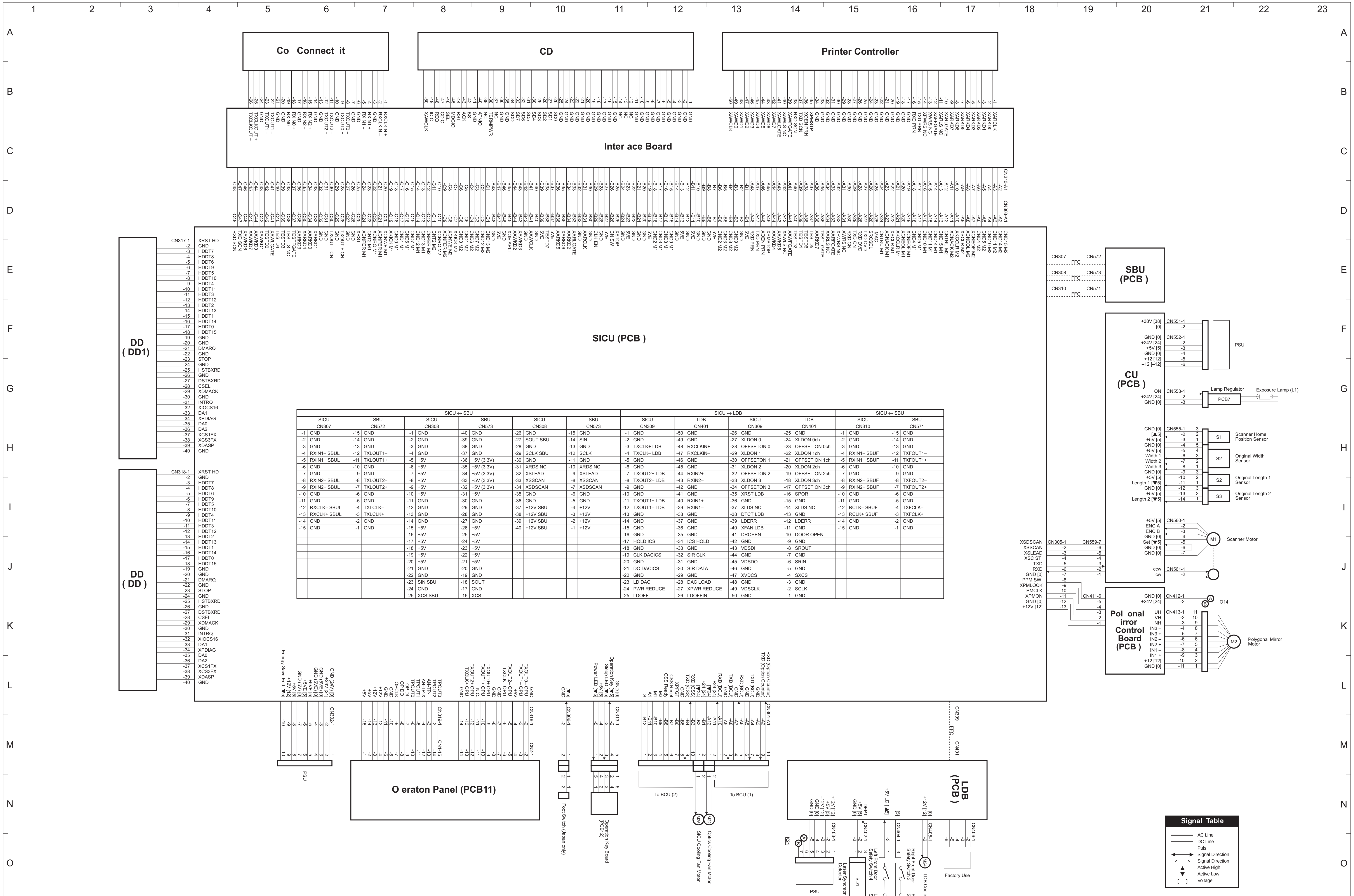
Symbol	Index No.	Description	P to P
Motors			
M1	18	LCT	E2
M2	9	1st Lift	F2
M3	16	2nd Lift	F2
M4	22	3rd Lift	E2
Sensors			
S1	40	1st Paper Feed	E6
S2	35	2nd Paper Feed	F6
S3	28	3rd Paper Feed	G6
S4	42	1st Lift	F6
S5	38	2nd Lift	G6
S6	30	3rd Lift	H6
S7	41	1st End	F6
S8	34	2nd End	G6
S9	27	3rd End	H6
S10	3	1st Paper Height 1	A6
S11	4	1st Paper Height 2	B6
S12	5	1st Paper Height 3	B6
S13	6	1st Paper Height 4	B6
S14	11	2nd Paper Height 1	C6
S15	12	2nd Paper Height 2	C6
S16	13	2nd Paper Height 3	C6
S17	33	2nd Paper Height 4	D6
S18	17	3rd Paper Height 1	D6
S19	19	3rd Paper Height 2	D6
S20	24	3rd Paper Height 3	E6
S21	23	3rd Paper Height 4	E6

Symbol	Index No.	Description	P to P
S22	37	Relay	E6
Switches			
SW1	29	Front Door Safety	J6
SW2	7	1st Paper Size	H6
SW3	14	2nd Paper Size	I6
SW4	21	3rd Paper Size	I6
Magnetic Clutches			
MC1	2	1st Paper Feed	G2
MC2	10	2nd Paper Feed	H2
MC3	25	3rd Paper Feed	H2
MC4	1	1st Grip	G2
MC5	8	2nd Grip	H2
MC6	32	3rd Grip	I2
MC7	15	Transport	F2
Solenoids			
SOL1	43	1st Pick-up	I2
SOL2	39	2nd Pick-up	I2
SOL3	31	3rd Pick-up	J2
SOL4	44	1st Separation	G2
SOL5	39	2nd Separation	G2
SOL6	31	3rd Separation	H2
PCBs			
PCB1	20	Main	J4

A294 Point to Point Diagram 1/2



AC Drive Board (PCB 10)
IOB (PCB4)
PSU (PCB3)
BCU (PCB1)
AC Line Block Chart
Circuit Braker
Noise Filter
CB1
NF1
Fusing Unit
Thermofuse (TF1)
Thermistor
TH1
Fusing Lamp
Drum Heater (option)
Optics Anti-Condensation Heater (option)
Tray Heater 1 (option)
Tray Heater 2 (option)
LCT Heater (option)
Main Switch (SW1)
Left Front Door Safety Switch (SW7)
Right Front Door Safety Switch (SW3)
Right Front Door Safety Switch 1 (SW2)
Left Front Door Safety Switch 1 (SW6)
To SICU
To MCU
To LCB
Mother Board (Printer Controller)
HDD 1
HDD 2
PSU Cooling Fan 1
PSU Cooling Fan 2
LCT
Not Used
Option Counter (Japan only)
Finisher
ARDF
CSS 3
CSS 2
CSS 1
To SICU (1)
To SICU (2)
LCT Relay Clutch
Relay Sensor
LCT Relay Sensor
Registration Sensor
Guide Plate Solenoid
Guide Plate Position Sensor
Upper Relay Clutch
Relay Motor
1st Paper Feed Sensor
1st Paper End Sensor
1st Tray Lift Sensor
1st Pick-up Solenoid
2nd Paper Feed Sensor
2nd Paper End Sensor
2nd Tray Lift Sensor
2nd Pick-up Solenoid
3rd Paper Feed Sensor
3rd Paper End Sensor
3rd Tray Lift Sensor
3rd Pick-up Solenoid
1st Separation Roller Solenoid
1st Paper Feed Clutch
1st Vertical Transport Clutch
2nd Separation Roller Solenoid
2nd Paper Feed Clutch
2nd Vertical Transport Clutch
3rd Separation Roller Solenoid
3rd Paper Feed Clutch
3rd Vertical Transport Clutch
Rear Fence Drive Motor
Rear Fence HP Sensor
Rear Fence Return Sensor
Left 1st Tray Paper Sensor
Front Side Fence Open Sensor
Front Side Fence Close Sensor
Rear Side Fence Open Sensor
Rear Side Fence Close Sensor
Front Side Fence Solenoid
Rear Side Fence Solenoid
Right 1st Tray Paper Sensor
1st Tray Paper Height 4 Sensor
1st Tray Paper Height 3 Sensor
1st Tray Paper Height 2 Sensor
1st Tray Paper Height 1 Sensor
Base Plate Down Sensor
3rd Paper Size Switch
2nd Paper Size Switch
3rd Tray Lift Motor
2nd Tray Lift Motor
Lower Relay Clutch
Left 1st Tray Lock Solenoid
Tandem Tray Connect Solenoid
1st Tray Lift Motor
Paper Feed Motor
Toner Supply Motor Sensor
Toner Supply Motor
Development Unit Cooling Fan 1 Motor
Development Unit Cooling Fan 2 Motor
Toner Supply Roller Clutch
Development Motor
Drum Motor
Fusing/Duplex Motor
Toner Near End Sensor
Toner Collection Bottle Sensor
Toner Overflow Sensor
Toner Supply Coil Clutch
Toner Bank Unit Motor
Lower Toner Bottle Motor
Lower Bottle Cap Motor
Lower Bottle Inner Cap Sensor
Lower Toner Bottle Sensor
Upper Toner Bottle Motor
Upper Bottle Cap Motor
Upper Bottle Inner Cap Sensor
Upper Toner Bottle Sensor
Registration Motor
Toner Hopper Sensor
Toner Density Sensor
Polygonal Mirror Motor Cooling Fan Motor
Exhaust Fan Motor
Drum Cooling Fan Motor
Key Counter (Option)
Steam Removal Fan Motor
Duplex Cooling Fan Motor
Paper Cooling Pipe Fan Motor
Total Counter
Exit Sensor
Fusing Exit Sensor
Inverter Gate Solenoid
Oil Supply/Cleaning Web End Sensor
Oil Supply/Cleaning Web Motor
Charge/Bias/Grid Power Pack
Drum Potential Sensor
ID Sensor
Charge Corona Wire Cleaner Motor
Quenching Lamp
Transfer Power Pack
Transfer Belt Lift Solenoid
Jogger Motor
Inverter Exit Roller Clutch
Duplex Transport Clutch
Duplex Feed Clutch
Duplex Inverter Gate Solenoid
Reverse Roller Solenoid
Inverter Guide Plate Solenoid
Duplex Entrance Sensor
Duplex Jogger HP Sensor
Duplex Transport 3 Sensor
Duplex Transport 2 Sensor
Duplex Transport 1 Sensor
Duplex Inverter Sensor
Signal Table
AC Line
DC Line
Puls
Signal Direction
Signal Direction
Active High
Active Low
[ ] Voltage


Co Connect it
CD
Printer Controller
Interface Board
SICU (PCB)
DD (DD1)
DD (DD)
SBU (PCB)
CU (PCB)
PSU
Lamp Regulator
PCB7
Exposure Lamp (L1)
Scanner Home Position Sensor
Original Width Sensor
Original Length 1 Sensor
Original Length 2 Sensor
S1
S2
S3
M1
Scanner Motor
Polygonal Mirror Control Board (PCB)
Q14
M2
Polygonal Mirror Motor
Operation Panel (PCB11)
Foot Switch (Japan only)
Operation Key Board (PCB12)
To BCU (2)
To BCU (1)
SICU Cooling Fan Motor
Optics Cooling Fan Motor
LDB (PCB)
Laser Synchronization Detector
SD1
Left Front Door Safety Switch 4
Left Front Door Safety Switch 3
Right Front Door Safety Switch 3
Right Front Door Safety Switch 4
LDB Cooling Fan Motor
Factory Use
FFC
1
2
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P

SICU ↔ SBU			
SICU		SBU	
CN307		CN572	
-1	GND	-15	GND
-2	GND	-14	GND
-3	GND	-13	GND
-4	RXIN1– SBUL	-12	TXLOUT1–
-5	RXIN1+ SBUL	-11	TXLOUT1+
-6	GND	-10	GND
-7	GND	-9	GND
-8	RXIN2– SBUL	-8	TXLOUT2–
-9	RXIN2+ SBUL	-7	TXLOUT2+
-10	GND	-6	GND
-11	GND	-5	GND
-12	RXCLK– SBUL	-4	TXLCLK–
-13	RXCLK+ SBUL	-3	TXLCLK+
-14	GND	-2	GND
-15	GND	-1	GND

SICU ↔ SBU							
SICU		SBU		SICU		SBU	
CN308		CN573		CN308		CN573	
-1	GND	-40	GND	-26	GND	-15	GND
-2	GND	-39	GND	-27	SOUT SBU	-14	SIN
-3	GND	-38	GND	-28	GND	-13	GND
-4	GND	-37	GND	-29	SCLK SBU	-12	SCLK
-5	+5V	-36	+5V (3.3V)	-30	GND	-11	GND
-6	+5V	-35	+5V (3.3V)	-31	XRDS NC	-10	XRDS NC
-7	+5V	-34	+5V (3.3V)	-32	XSLEAD	-9	XSLEAD
-8	+5V	-33	+5V (3.3V)	-33	XSSCAN	-8	XSSCAN
-9	+5V	-32	+5V (3.3V)	-34	XSDSCAN	-7	XSDSCAN
-10	+5V	-31	+5V	-35	GND	-6	GND
-11	GND	-30	GND	-36	GND	-5	GND
-12	GND	-29	GND	-37	+12V SBU	-4	+12V
-13	GND	-28	GND	-38	+12V SBU	-3	+12V
-14	GND	-27	GND	-39	+12V SBU	-2	+12V
-15	+5V	-26	+5V	-40	+12V SBU	-1	+12V
-16	+5V	-25	+5V				
-17	+5V	-24	+5V				
-18	+5V	-23	+5V				
-19	+5V	-22	+5V				
-20	+5V	-21	+5V				
-21	GND	-20	GND				
-22	GND	-19	GND				
-23	SIN SBU	-18	SOUT				
-24	GND	-17	GND				
-25	XCS SBU	-16	XCS				

SICU ↔ LDB							
SICU		LDB		SICU		LDB	
CN309		CN401		CN309		CN401	
-1	GND	-50	GND	-26	GND	-25	GND
-2	GND	-49	GND	-27	XLDON 0	-24	XLDON 0ch
-3	TXCLK+ LDB	-48	RXCLKIN+	-28	OFFSETON 0	-23	OFFSET ON 0ch
-4	TXCLK– LDB	-47	RXCLKIN–	-29	XLDON 1	-22	XLDON 1ch
-5	GND	-46	GND	-30	OFFSETON 1	-21	OFFSET ON 1ch
-6	GND	-45	GND	-31	XLDON 2	-20	XLDON 2ch
-7	TXOUT2+ LDB	-44	RXIN2+	-32	OFFSETON 2	-19	OFFSET ON 2ch
-8	TXOUT2– LDB	-43	RXIN2–	-33	XLDON 3	-18	XLDON 3ch
-9	GND	-42	GND	-34	OFFSETON 3	-17	OFFSET ON 3ch
-10	GND	-41	GND	-35	XRST LDB	-16	SPOR
-11	TXOUT1+ LDB	-40	RXIN1+	-36	GND	-15	GND
-12	TXOUT1– LDB	-39	RXIN1–	-37	XLDS NC	-14	XLDS NC
-13	GND	-38	GND	-38	DTCT LDB	-13	GND
-14	GND	-37	GND	-39	LDERR	-12	LDERR
-15	GND	-36	GND	-40	XFAN LDB	-11	GND
-16	GND	-35	GND	-41	DROPEN	-10	DOOR OPEN
-17	HOLD ICS	-34	ICS HOLD	-42	GND	-9	GND
-18	GND	-33	GND	-43	VDSDI	-8	SROUT
-19	CLK DACICS	-32	SIR CLK	-44	GND	-7	GND
-20	GND	-31	GND	-45	VDSDO	-6	SRIN
-21	DO DACICS	-30	SIR DATA	-46	GND	-5	GND
-22	GND	-29	GND	-47	XVDCS	-4	SXCS
-23	LD DAC	-28	DAC LOAD	-48	GND	-3	GND
-24	PWR REDUCE	-27	XPWR REDUCE	-49	VDSCLK	-2	SCLK
-25	LDOFF	-26	LDOFFIN	-50	GND	-1	GND

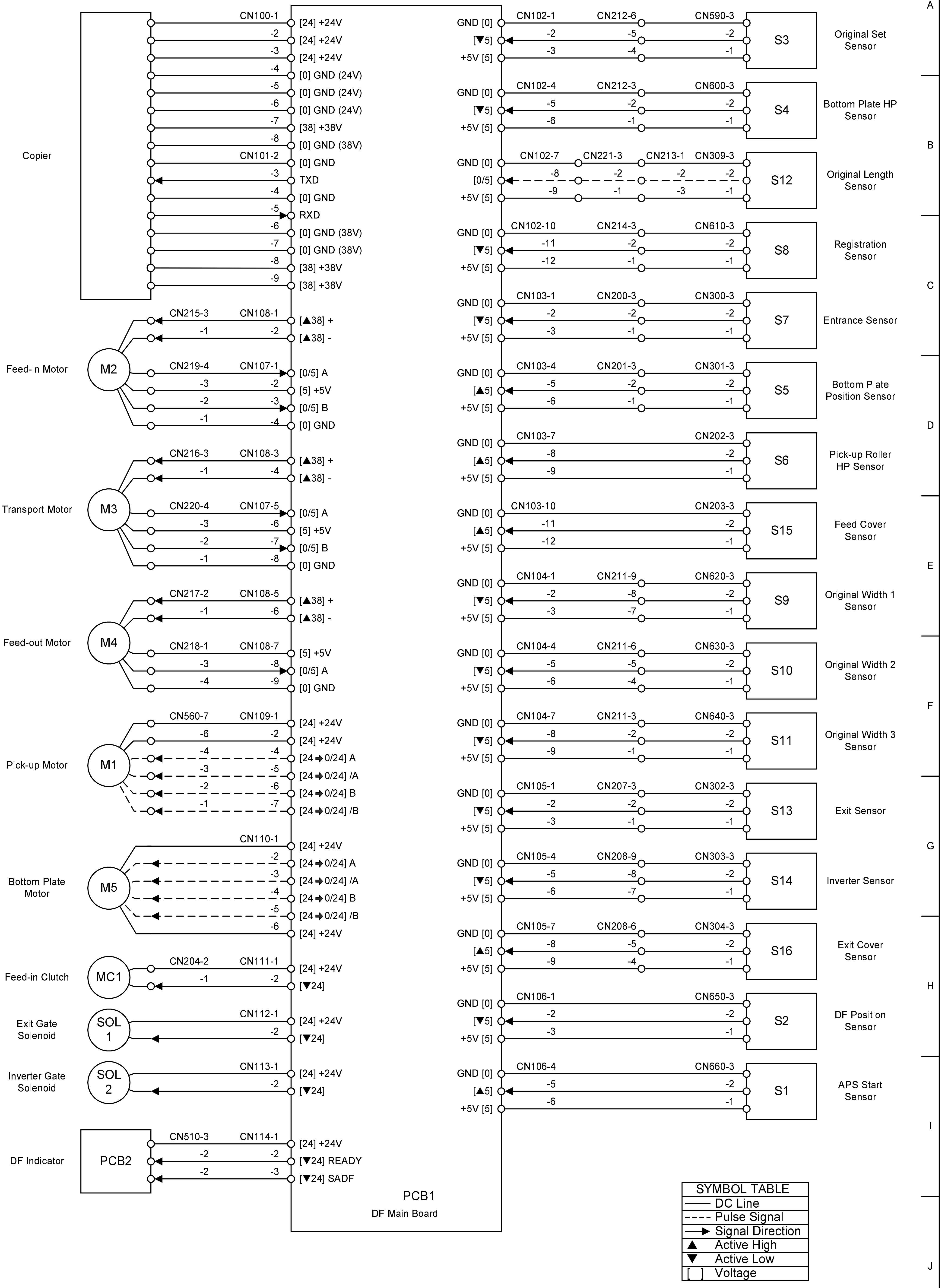
SICU ↔ SBU			
SICU		SBU	
CN310		CN571	
-1	GND	-15	GND
-2	GND	-14	GND
-3	GND	-13	GND
-4	RXIN1– SBUF	-12	TXFOUT1–
-5	RXIN1+ SBUF	-11	TXFOUT1+
-6	GND	-10	GND
-7	GND	-9	GND
-8	RXIN2– SBUF	-8	TXFOUT2–
-9	RXIN2+ SBUF	-7	TXFOUT2+
-10	GND	-6	GND
-11	GND	-5	GND
-12	RCLK– SBUF	-4	TXFCLK–
-13	RCLK+ SBUF	-3	TXFCLK+
-14	GND	-2	GND
-15	GND	-1	GND

Signal Table

──	AC Line
──	DC Line
- - -	Puls
◄──►	Signal Direction
< >	Signal Direction
▲	Active High
▼	Active Low
[ ]	Voltage

A294 Point to Point Diagram 2/2

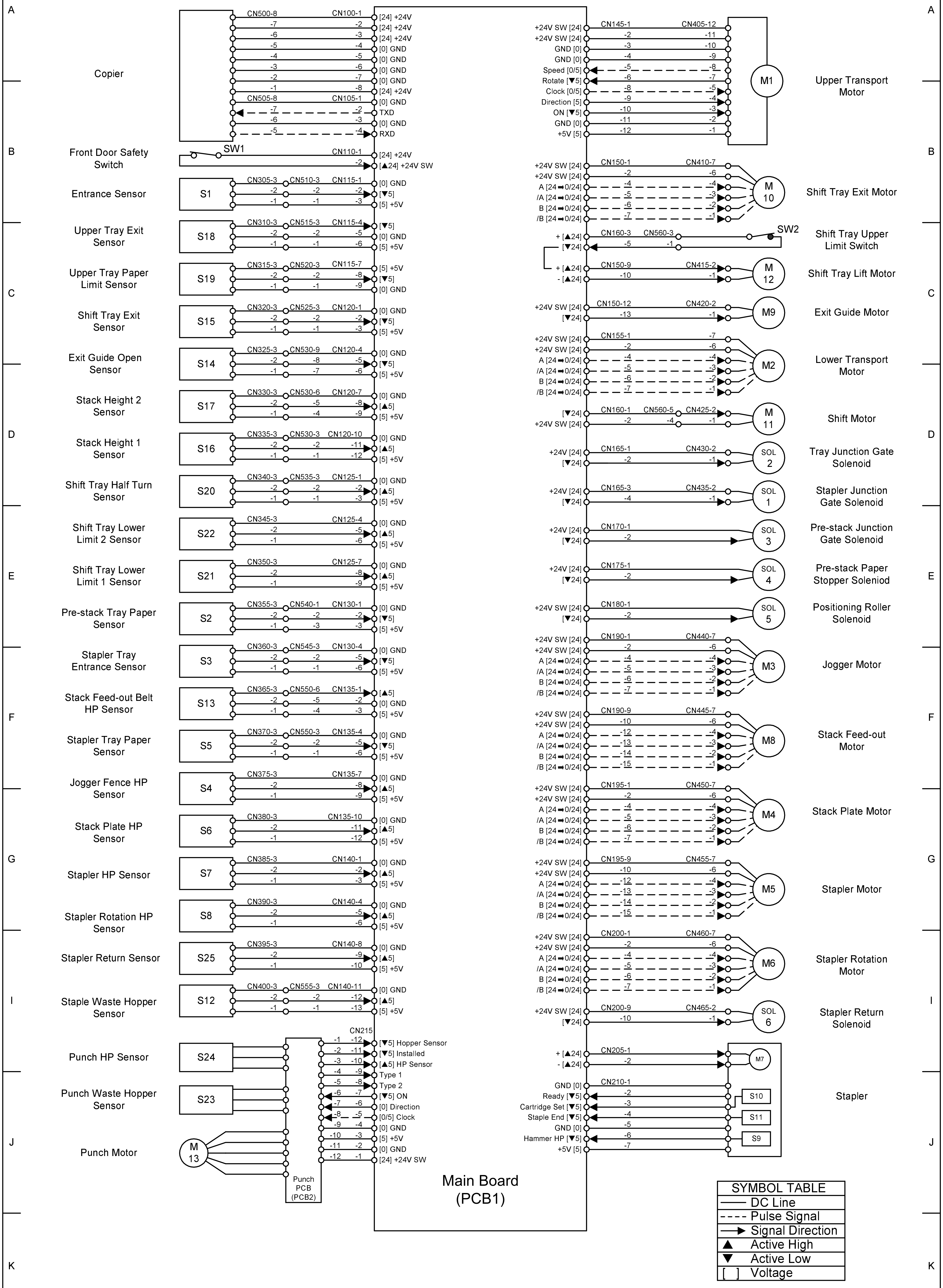
POINT TO POINT DIAGRAM (ADF: B301)



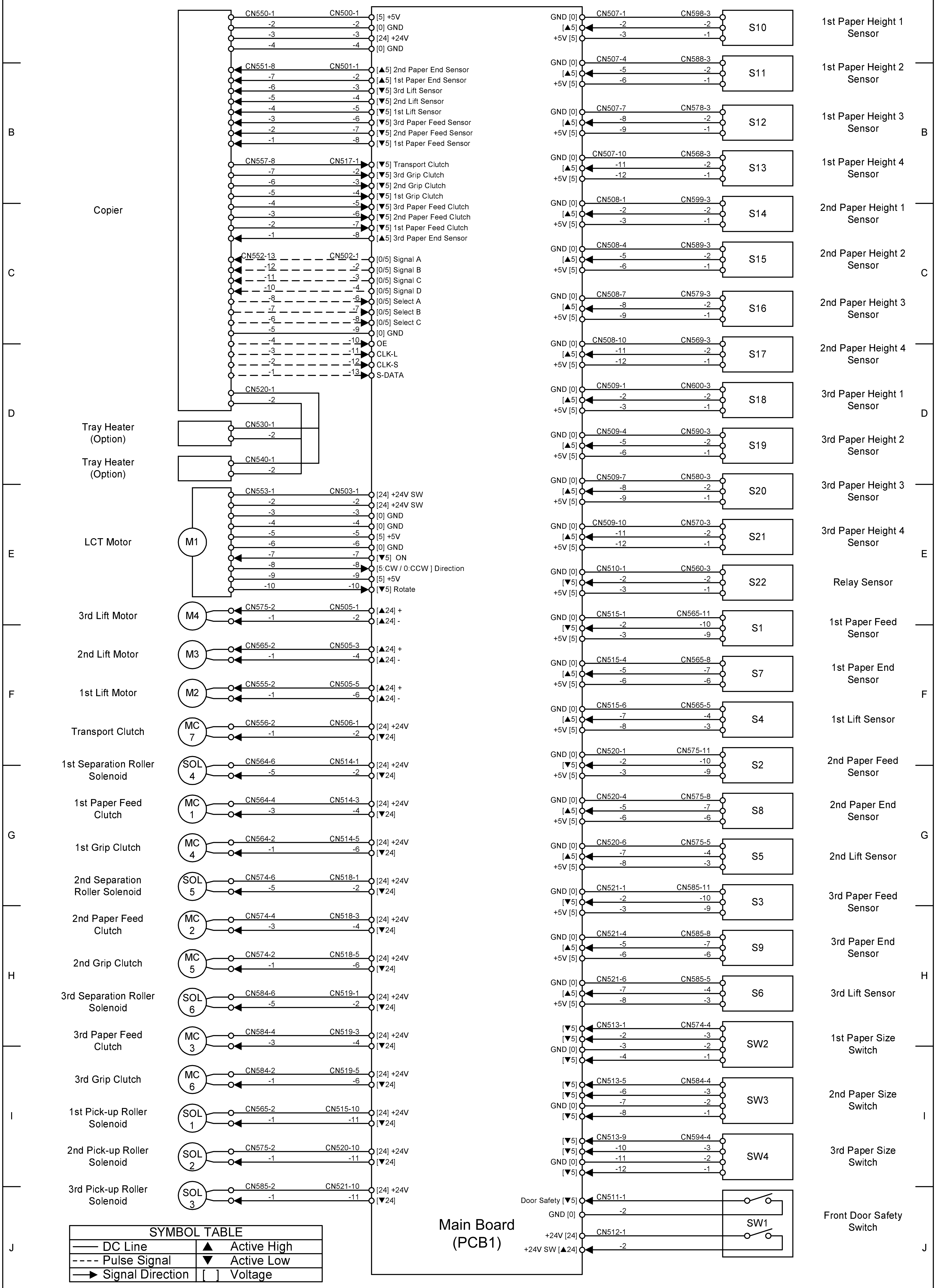
Copier
CN100-1 [24] +24V
-2 [24] +24V
-3 [24] +24V
-4 [0] GND (24V)
-5 [0] GND (24V)
-6 [0] GND (24V)
-7 [38] +38V
-8 [0] GND (38V)
CN101-2 [0] GND
-3 TXD
-4 [0] GND
-5 RXD
-6 [0] GND (38V)
-7 [0] GND (38V)
-8 [38] +38V
-9 [38] +38V
Feed-in Motor
M2
CN215-3 CN108-1 [▲38] +
-1 -2 [▲38] -
CN219-4 CN107-1 [0/5] A
-3 -2 [5] +5V
-2 -3 [0/5] B
-1 -4 [0] GND
Transport Motor
M3
CN216-3 CN108-3 [▲38] +
-1 -4 [▲38] -
CN220-4 CN107-5 [0/5] A
-3 -6 [5] +5V
-2 -7 [0/5] B
-1 -8 [0] GND
Feed-out Motor
M4
CN217-2 CN108-5 [▲38] +
-1 -6 [▲38] -
CN218-1 CN108-7 [5] +5V
-3 -8 [0/5] A
-4 -9 [0] GND
Pick-up Motor
M1
CN560-7 CN109-1 [24] +24V
-6 -2 [24] +24V
-4 -4 [24➔0/24] A
-3 -5 [24➔0/24] /A
-2 -6 [24➔0/24] B
-1 -7 [24➔0/24] /B
Bottom Plate Motor
M5
CN110-1 [24] +24V
-2 [24➔0/24] A
-3 [24➔0/24] /A
-4 [24➔0/24] B
-5 [24➔0/24] /B
-6 [24] +24V
Feed-in Clutch
MC1
CN204-2 CN111-1 [24] +24V
-1 -2 [▼24]
Exit Gate Solenoid
SOL 1
CN112-1 [24] +24V
-2 [▼24]
Inverter Gate Solenoid
SOL 2
CN113-1 [24] +24V
-2 [▼24]
DF Indicator
PCB2
CN510-3 CN114-1 [24] +24V
-2 -2 [▼24] READY
-2 -3 [▼24] SADF
PCB1
DF Main Board
GND [0] CN102-1 CN212-6 CN590-3
[▼5] -2 -5 -2
+5V [5] -3 -4 -1
S3 Original Set Sensor
GND [0] CN102-4 CN212-3 CN600-3
[▼5] -5 -2 -2
+5V [5] -6 -1 -1
S4 Bottom Plate HP Sensor
GND [0] CN102-7 CN221-3 CN213-1 CN309-3
[0/5] -8 -2 -2 -2
+5V [5] -9 -1 -3 -1
S12 Original Length Sensor
GND [0] CN102-10 CN214-3 CN610-3
[▼5] -11 -2 -2
+5V [5] -12 -1 -1
S8 Registration Sensor
GND [0] CN103-1 CN200-3 CN300-3
[▼5] -2 -2 -2
+5V [5] -3 -1 -1
S7 Entrance Sensor
GND [0] CN103-4 CN201-3 CN301-3
[▲5] -5 -2 -2
+5V [5] -6 -1 -1
S5 Bottom Plate Position Sensor
GND [0] CN103-7 CN202-3
[▲5] -8 -2
+5V [5] -9 -1
S6 Pick-up Roller HP Sensor
GND [0] CN103-10 CN203-3
[▲5] -11 -2
+5V [5] -12 -1
S15 Feed Cover Sensor
GND [0] CN104-1 CN211-9 CN620-3
[▼5] -2 -8 -2
+5V [5] -3 -7 -1
S9 Original Width 1 Sensor
GND [0] CN104-4 CN211-6 CN630-3
[▼5] -5 -5 -2
+5V [5] -6 -4 -1
S10 Original Width 2 Sensor
GND [0] CN104-7 CN211-3 CN640-3
[▼5] -8 -2 -2
+5V [5] -9 -1 -1
S11 Original Width 3 Sensor
GND [0] CN105-1 CN207-3 CN302-3
[▼5] -2 -2 -2
+5V [5] -3 -1 -1
S13 Exit Sensor
GND [0] CN105-4 CN208-9 CN303-3
[▼5] -5 -8 -2
+5V [5] -6 -7 -1
S14 Inverter Sensor
GND [0] CN105-7 CN208-6 CN304-3
[▲5] -8 -5 -2
+5V [5] -9 -4 -1
S16 Exit Cover Sensor
GND [0] CN106-1 CN650-3
[▼5] -2 -2
+5V [5] -3 -1
S2 DF Position Sensor
GND [0] CN106-4 CN660-3
[▲5] -5 -2
+5V [5] -6 -1
S1 APS Start Sensor

SYMBOL TABLE
—— DC Line
- - - - Pulse Signal
──▶ Signal Direction
▲ Active High
▼ Active Low
[ ] Voltage

POINT TO POINT DIAGRAM (Finisher: B302)


Copier
Front Door Safety Switch
SW1
Entrance Sensor
S1
Upper Tray Exit Sensor
S18
Upper Tray Paper Limit Sensor
S19
Shift Tray Exit Sensor
S15
Exit Guide Open Sensor
S14
Stack Height 2 Sensor
S17
Stack Height 1 Sensor
S16
Shift Tray Half Turn Sensor
S20
Shift Tray Lower Limit 2 Sensor
S22
Shift Tray Lower Limit 1 Sensor
S21
Pre-stack Tray Paper Sensor
S2
Stapler Tray Entrance Sensor
S3
Stack Feed-out Belt HP Sensor
S13
Stapler Tray Paper Sensor
S5
Jogger Fence HP Sensor
S4
Stack Plate HP Sensor
S6
Stapler HP Sensor
S7
Stapler Rotation HP Sensor
S8
Stapler Return Sensor
S25
Staple Waste Hopper Sensor
S12
Punch HP Sensor
S24
Punch Waste Hopper Sensor
S23
Punch Motor
M 13
Punch PCB (PCB2)
CN215
Main Board (PCB1)
Upper Transport Motor
M1
Shift Tray Exit Motor
M 10
Shift Tray Upper Limit Switch
SW2
Shift Tray Lift Motor
M 12
Exit Guide Motor
M9
Lower Transport Motor
M2
Shift Motor
M 11
Tray Junction Gate Solenoid
SOL 2
Stapler Junction Gate Solenoid
SOL 1
Pre-stack Junction Gate Solenoid
SOL 3
Pre-stack Paper Stopper Soleniod
SOL 4
Positioning Roller Solenoid
SOL 5
Jogger Motor
M3
Stack Feed-out Motor
M8
Stack Plate Motor
M4
Stapler Motor
M5
Stapler Rotation Motor
M6
Stapler Return Solenoid
SOL 6
Stapler
M7
S10
S11
S9
SYMBOL TABLE
DC Line
Pulse Signal
Signal Direction
▲ Active High
▼ Active Low
[ ] Voltage

POINT TO POINT DIAGRAM (LCT: B303)

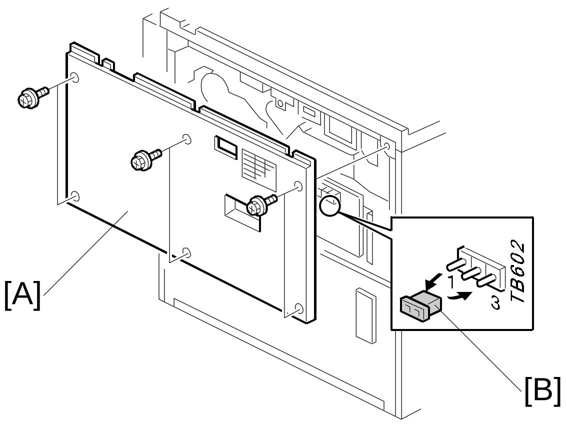


Copier
CN550-1 CN500-1 [5] +5V
[0] GND
[24] +24V
[0] GND
CN551-8 CN501-1
[▲5] 2nd Paper End Sensor
[▲5] 1st Paper End Sensor
[▼5] 3rd Lift Sensor
[▼5] 2nd Lift Sensor
[▼5] 1st Lift Sensor
[▼5] 3rd Paper Feed Sensor
[▼5] 2nd Paper Feed Sensor
[▼5] 1st Paper Feed Sensor
CN557-8 CN517-1
[▼5] Transport Clutch
[▼5] 3rd Grip Clutch
[▼5] 2nd Grip Clutch
[▼5] 1st Grip Clutch
[▼5] 3rd Paper Feed Clutch
[▼5] 2nd Paper Feed Clutch
[▼5] 1st Paper Feed Clutch
[▲5] 3rd Paper End Sensor
CN552-13 CN502-1
[0/5] Signal A
[0/5] Signal B
[0/5] Signal C
[0/5] Signal D
[0/5] Select A
[0/5] Select B
[0/5] Select C
[0] GND
OE
CLK-L
CLK-S
S-DATA
CN520-1
Tray Heater (Option)
CN530-1
Tray Heater (Option)
CN540-1
LCT Motor
M1
CN553-1 CN503-1
[24] +24V SW
[24] +24V SW
[0] GND
[0] GND
[5] +5V
[0] GND
[▼5] ON
[5:CW / 0:CCW] Direction
[5] +5V
[▼5] Rotate
3rd Lift Motor M4 CN575-2 CN505-1 [▲24] + [▲24] -
2nd Lift Motor M3 CN565-2 CN505-3 [▲24] + [▲24] -
1st Lift Motor M2 CN555-2 CN505-5 [▲24] + [▲24] -
Transport Clutch MC7 CN556-2 CN506-1 [24] +24V [▼24]
1st Separation Roller Solenoid SOL4 CN564-6 CN514-1 [24] +24V [▼24]
1st Paper Feed Clutch MC1 CN564-4 CN514-3 [24] +24V [▼24]
1st Grip Clutch MC4 CN564-2 CN514-5 [24] +24V [▼24]
2nd Separation Roller Solenoid SOL5 CN574-6 CN518-1 [24] +24V [▼24]
2nd Paper Feed Clutch MC2 CN574-4 CN518-3 [24] +24V [▼24]
2nd Grip Clutch MC5 CN574-2 CN518-5 [24] +24V [▼24]
3rd Separation Roller Solenoid SOL6 CN584-6 CN519-1 [24] +24V [▼24]
3rd Paper Feed Clutch MC3 CN584-4 CN519-3 [24] +24V [▼24]
3rd Grip Clutch MC6 CN584-2 CN519-5 [24] +24V [▼24]
1st Pick-up Roller Solenoid SOL1 CN565-2 CN515-10 [24] +24V [▼24]
2nd Pick-up Roller Solenoid SOL2 CN575-2 CN520-10 [24] +24V [▼24]
3rd Pick-up Roller Solenoid SOL3 CN585-2 CN521-10 [24] +24V [▼24]
Main Board (PCB1)
GND [0] [▲5] +5V [5]
S10 CN507-1 CN598-3 1st Paper Height 1 Sensor
S11 CN507-4 CN588-3 1st Paper Height 2 Sensor
S12 CN507-7 CN578-3 1st Paper Height 3 Sensor
S13 CN507-10 CN568-3 1st Paper Height 4 Sensor
S14 CN508-1 CN599-3 2nd Paper Height 1 Sensor
S15 CN508-4 CN589-3 2nd Paper Height 2 Sensor
S16 CN508-7 CN579-3 2nd Paper Height 3 Sensor
S17 CN508-10 CN569-3 2nd Paper Height 4 Sensor
S18 CN509-1 CN600-3 3rd Paper Height 1 Sensor
S19 CN509-4 CN590-3 3rd Paper Height 2 Sensor
S20 CN509-7 CN580-3 3rd Paper Height 3 Sensor
S21 CN509-10 CN570-3 3rd Paper Height 4 Sensor
S22 CN510-1 CN560-3 Relay Sensor
S1 CN515-1 CN565-11 1st Paper Feed Sensor
S7 CN515-4 CN565-8 1st Paper End Sensor
S4 CN515-6 CN565-5 1st Lift Sensor
S2 CN520-1 CN575-11 2nd Paper Feed Sensor
S8 CN520-4 CN575-8 2nd Paper End Sensor
S5 CN520-6 CN575-5 2nd Lift Sensor
S3 CN521-1 CN585-11 3rd Paper Feed Sensor
S9 CN521-4 CN585-8 3rd Paper End Sensor
S6 CN521-6 CN585-5 3rd Lift Sensor
SW2 CN513-1 CN574-4 1st Paper Size Switch
SW3 CN513-5 CN584-4 2nd Paper Size Switch
SW4 CN513-9 CN594-4 3rd Paper Size Switch
Door Safety [▼5] CN511-1
GND [0]
+24V [24] CN512-1
+24V SW [▲24]
SW1 Front Door Safety Switch
SYMBOL TABLE
DC Line
Pulse Signal
Signal Direction
▲ Active High
▼ Active Low
[ ] Voltage

APPENDIX 1

1. RSS (REMOTE SERVICE SYSTEM)

1.1 RSS SET UP



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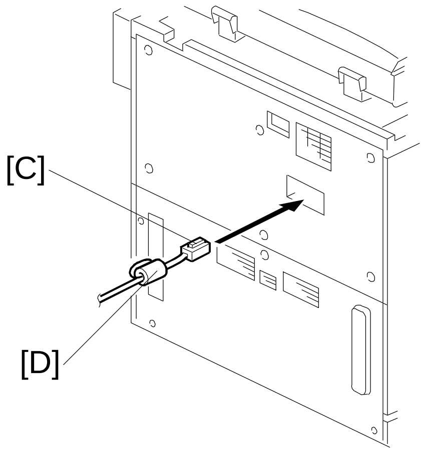
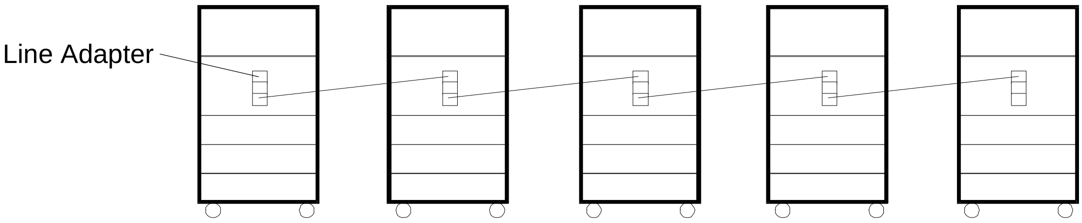


A294X202.WMF



A294X538.WMF

Machine No.	1	2	3	4	5
Jumper set	2-3	2-3	2-3	2-3	1-2
PI device code	0	1	2	3	4

⚠CAUTION

Unplug the machine power cord before starting the following procedure.

NOTE: When connecting only one machine to the line adapter, start from step 6.

1. Turn the main switch off and unplug the machine.
2. Remove the ADF connector and remove the rear cover [A] (6 screws).
3. Set the jumper switch [B] on the BCU as shown (default setting is 1-2).
4. Reinstall the rear cover and ADF connector.
5. Set the PI device code with SP5-821 (default 0).
   NOTE: After changing the value, turn the main power switch off and on to enable the PI device code.

6. Connect the modular cord [C] to the **left** modular connector, as shown.
   NOTE: Make sure that the harness end with the ferrite core [D] is connected to the terminal.
7. Install the line adapter (refer to chapter 2-1 L-ADP Installation Procedure in the CSS L-ADP Service Manual).

1.2 SP MODE SETTING

After installing the machine and line adapter, perform SP5-816-1 (CSS Function).

Check and set the value of the following SP modes. Ensure they are set correctly.

NOTE: SP5-507 is only for the Japanese version. Do not change.

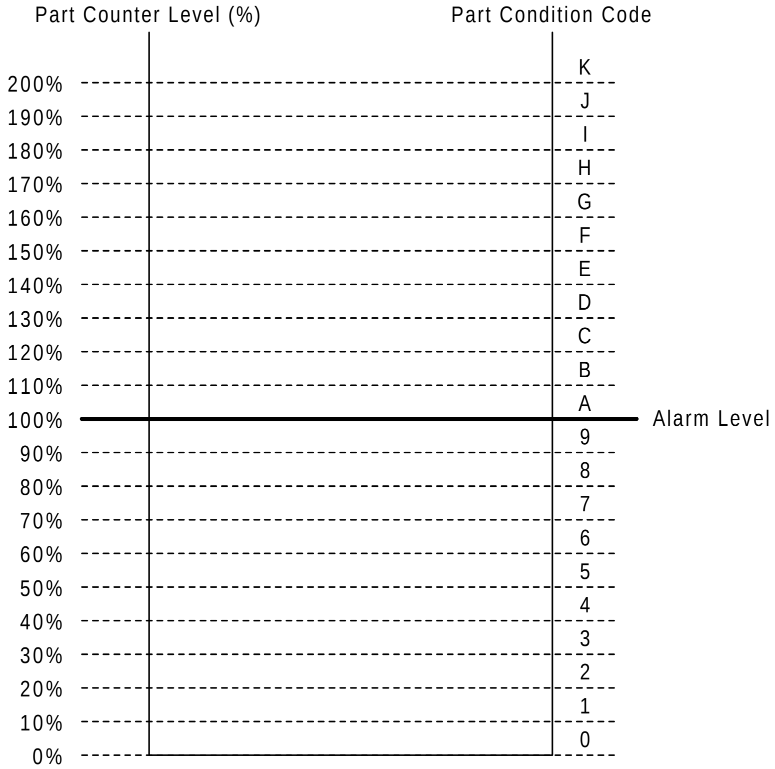
- SP5-504-1 (Jam Alarm Level): 3
- SP5-504-2 (Jam Auto Call): 1 (On)
- SP5-505 (Error Alam Level): 30
- SP5-513-1 (PM Call Interval – Copy Paper): 300
- SP5-514-1 (PM Call On/Off Setting – Copy Paper): 1 (Yes)
- SP5-590-2 (Cover Open Auto Call): 0 (Off) → 1 (On)

1.3 CHECKING ITEMS USING RSS

1.3.1 READ ONLY ITEMS

Item	Item
Paper end	Total original jam counter
Toner end	Paper jam counter by location
Staple end	Original jam counter by location
Toner near-end	Jam counter by copy size
Door open	Jam history
Jammed paper position	Number of each SCs
Unit connection condition	Total copies by reproduction ratio
Machine condition	Total copies by copy mode
Paper size information	PM call interval
System configuration	Counter level by PM part *Note
Total counter	Total machine operation time
Original counter	Fusing temperature
Copy counter by paper tray	ID sensor date
Staple counter	Process control data
Total paper jam counter	ROM version

NOTE: The counter level for each PM part is indicated as a code. The code shows the current value of the parts counter compared with the alarm level for the part. The diagram below shows the relationship between the code and the counter level. A part which is not selected for the PM list (“No” is selected in the All PM Parts List) is shown as “Z”.


Part Counter Level (%)
Part Condition Code
200%
190%
180%
170%
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
K
J
I
H
G
F
E
D
C
B
A
9
8
7
6
5
4
3
2
1
0
Alarm Level

A294X500.WMF

1.3.2 AUTO CALL AND READ ITEMS

Item
Continuously jam auto call
Cover open auto call
Jam condition auto call
Jam alarm
SC alarm
SC auto call:
PM Alarm

1.3.3 READ AND WRITE ITEMS

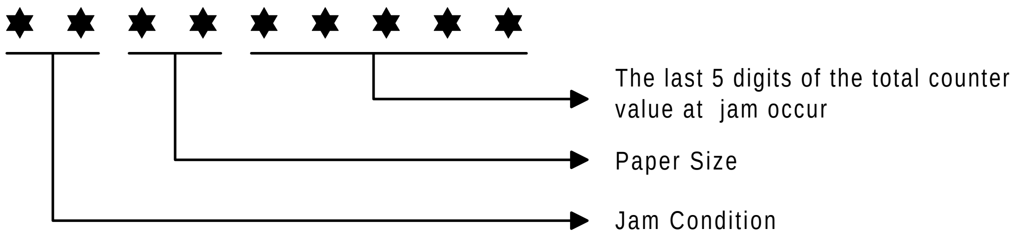
All data for SP modes and UP modes except few modes.

1.3.4 EXECUTE ITEMS

Item	Item
TD sensor initial setting	Original counter reset
ID sensor initial setting	Reset counter by each paper tray
User code (clear, register, change)	Reset counter by magnification
SC reset	Reset counter by image editing
PM counter reset	Reset counter by copy mode
SC/jam counters rest	Reset counter by multiple copies
Counters reset (except total counter)	Punch counter reset
Copy counter reset	Staple counter reset

1.4 JAM HISTORY

The jam history is read in this way.



AA294X539.WMF

1.4.1 JAM CONDITION TABLE

Copier

Code	Condition
01	Jams at power on
03	1st paper tray : paper non-feed jam
04	2nd paper tray : paper non-feed jam
05	3rd paper tray: paper non-feed jam
06	4th paper tray (LCT): paper non-feed jam
07	5th paper tray (LCT): paper non-feed jam
08	6th paper tray (LCT): paper non-feed jam
09	Relay sensor (LCT): paper does not activate the sensor
10	LCT relay sensor: paper does not activate the sensor
12	Relay sensor paper does not activate the sensor
13	Registration sensor: paper does not activate the sensor
15	Fusing exit sensor: paper does not activate the sensor
16	Exit sensor: paper does not activate the sensor
19	Duplex entrance sensor: paper does not activate the sensor
20	Duplex transport sensor 1: paper does not activate the sensor
21	Duplex transport sensor 2: paper does not activate the sensor
22	Duplex transport sensor 3: paper does not activate the sensor
23	Inverter tray paper sensor: paper does not activate the sensor
25	Finisher entrance sensor: paper does not activate the sensor
26	Finisher upper tray exit sensor: paper does not activate the sensor
27	Finisher shift tray exit sensor: paper does not activate the sensor
28	Finisher staple tray paper sensor: paper does not activate the sensor
29	Finisher stack feed-out belt HP sensor: paper does not activate the sensor
35	Finisher stapler tray entrance sensor: paper does not activate the sensor
53	1st paper feed sensor does not turn off
54	2nd paper feed sensor does not turn off
55	3rd paper feed sensor does not turn off
56	LCT 1st paper feed sensor does not turn off

Code	Condition
57	LCT 2nd paper feed sensor does not turn off
58	LCT 3rd paper feed sensor does not turn off
59	Relay sensor (LCT) does not turn off
60	LCT relay sensor does not turn off
62	Relay sensor does not turn off
63	Registration sensor does not turn off
65	Fusing exit sensor does not turn off
66	Exit sensor does not turn off
69	Duplex entrance sensor does not turn off
70	Duplex transport sensor 1 does not turn off
71	Duplex transport sensor 2 does not turn off
72	Duplex transport sensor 3 does not turn off
73	Inverter tray paper sensor does not turn off

Document Feeder

Code	Condition
01	Jams at power on
03	Jams in the feed-in area
04	Jams in the feed-out area

1.4.2 PAPER SIZE

Code	Paper Size	Code	Paper Size
05	A4 sideways	86	A5 lengthwise
06	A5 sideways	87	A6 lengthwise
07	A6 sideways	8D	B4
0E	B5 sideways	8E	B5 lengthwise
0F	B6 sideways	8F	B6 lengthwise
11	Return post card sideways	91	Return post card lengthwise
12	Post card sideways	92	Post card lengthwise
24	8.5” x 14” sideways	A0	11” x 17”
26	8.5” x 11” sideways	A4	8.5” x 14” lengthwise
2C	8.5” x 5.5” sideways	A6	8.5” x 11” lengthwise
84	A3	AC	8.5” x 5.5” lengthwise
85	A4 lengthwise		

BELLINI (A294)

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PARTS CATALOG

INTRODUCTION

This chapter instructs you the numbers and names of parts on this machine.

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RT42	**(B303)**
SR810	**(B302)**
Tray Kit Type 850	**(B331)**
Punch Unit Type 850	**(A812)**
Interface Board Type 850	**(B327)**

Bellini (A294)

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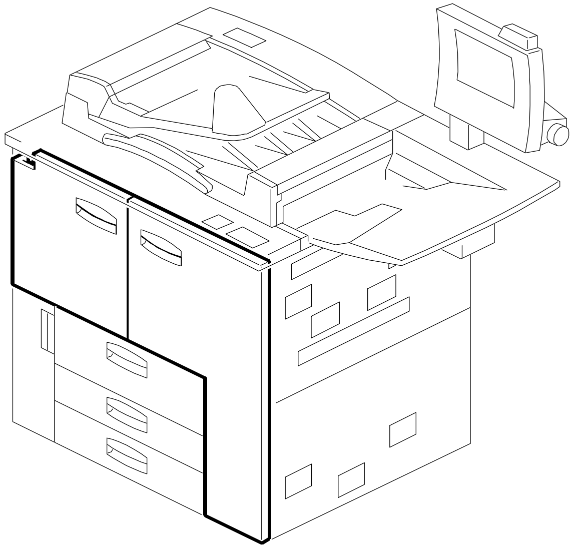

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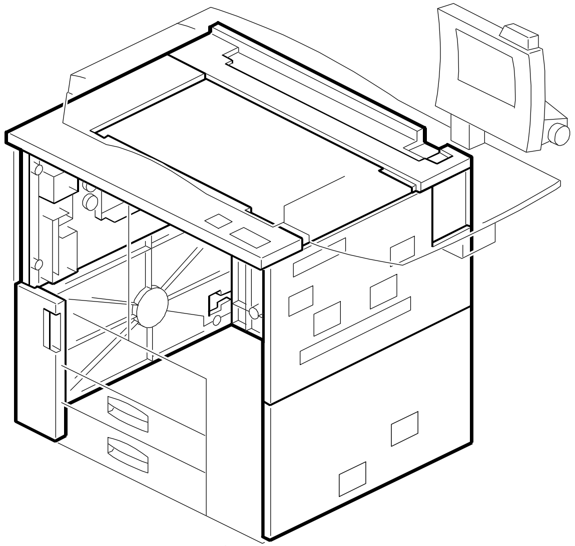

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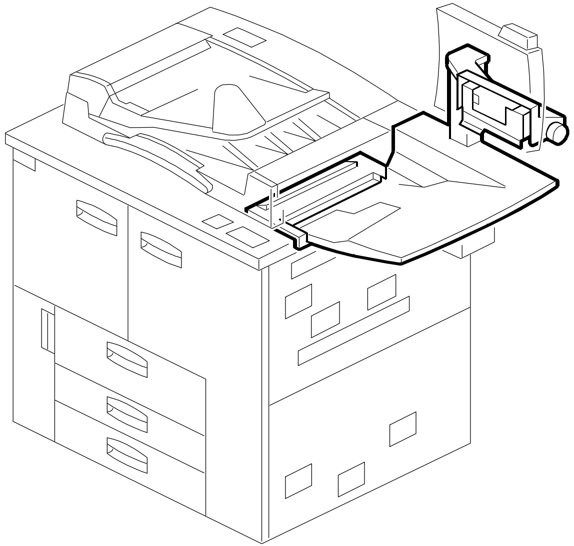

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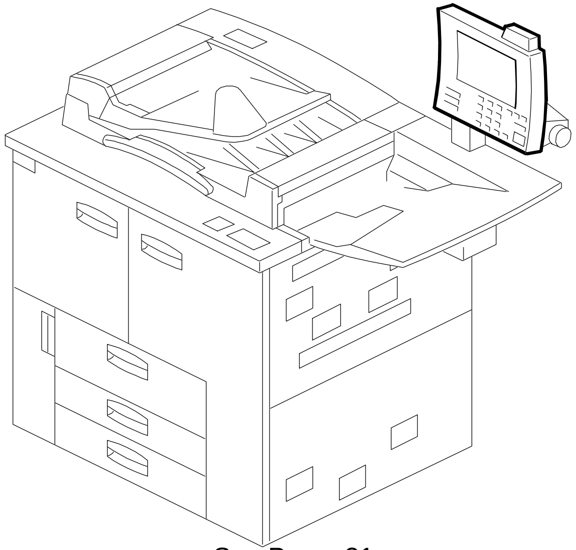

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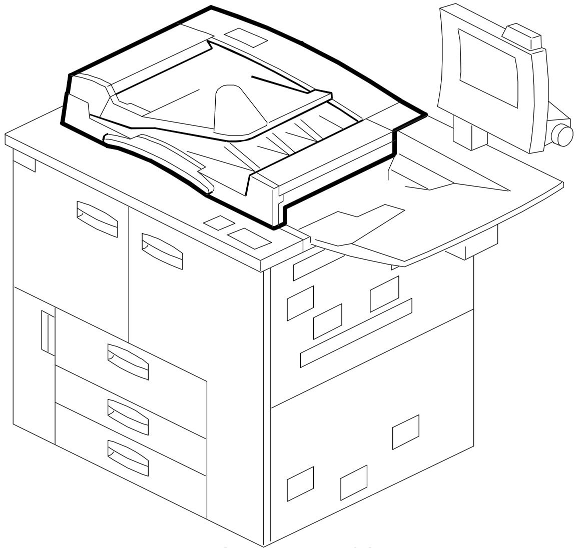
5.DF EXTERIOR (A294)



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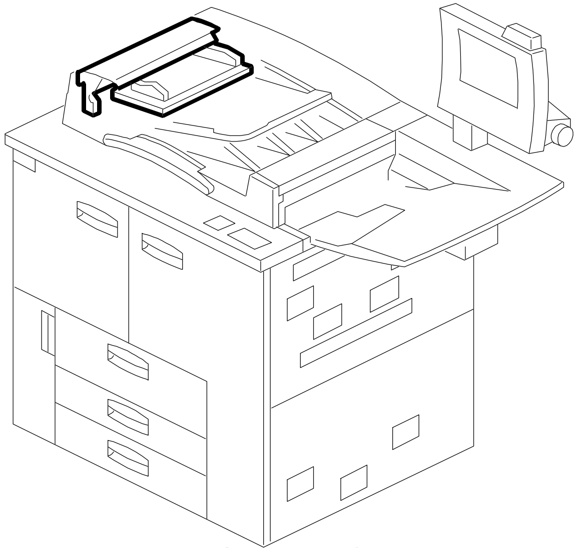

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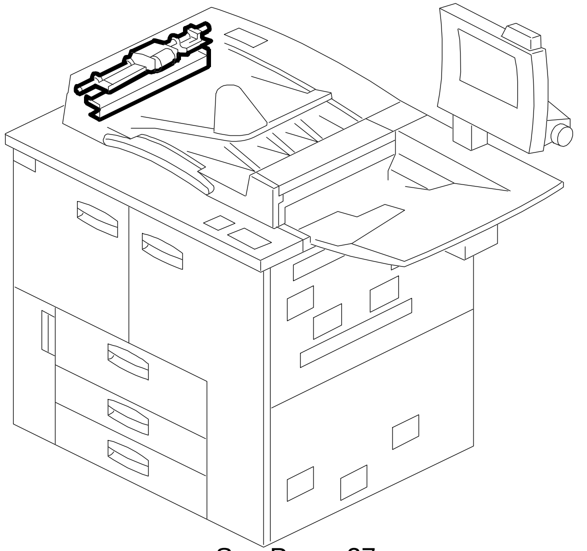

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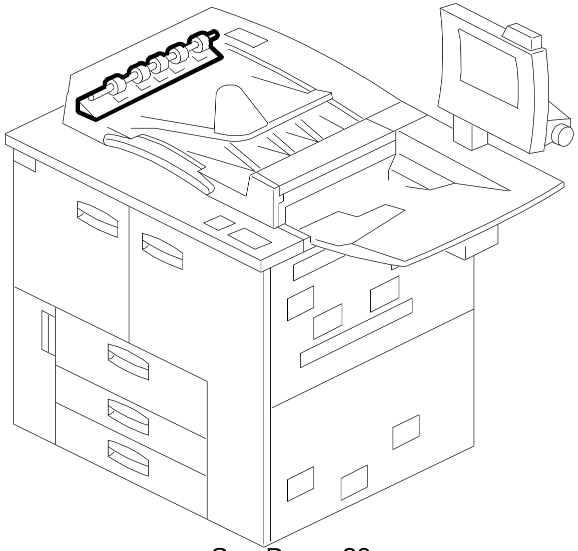

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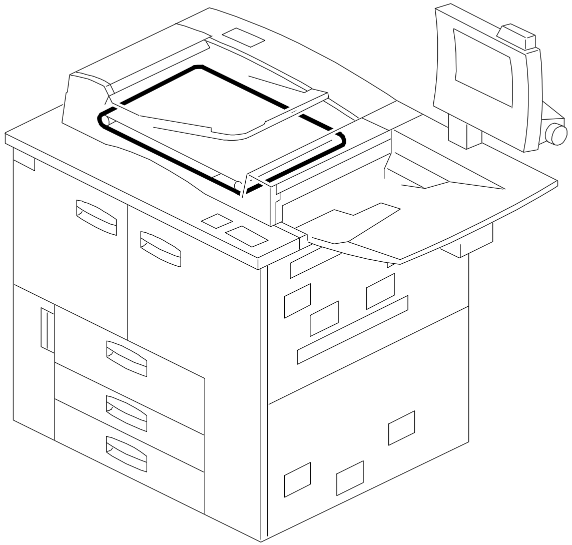

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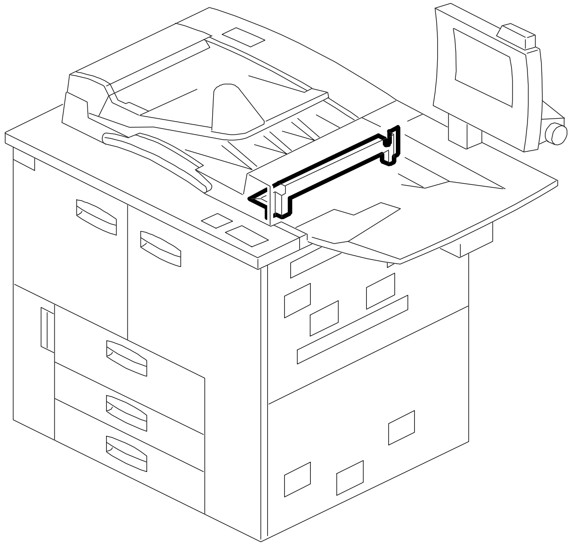

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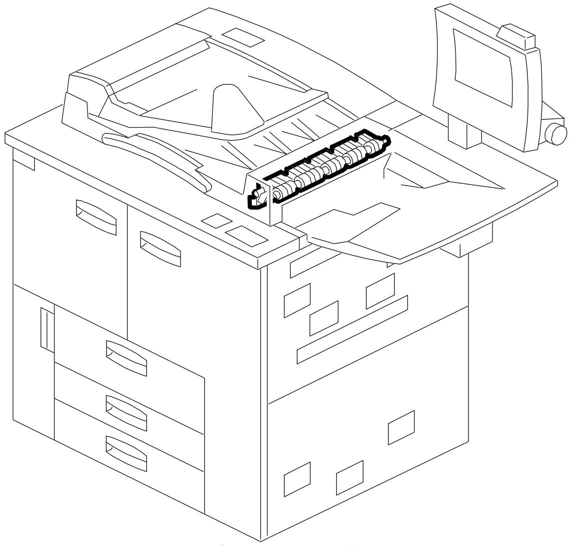

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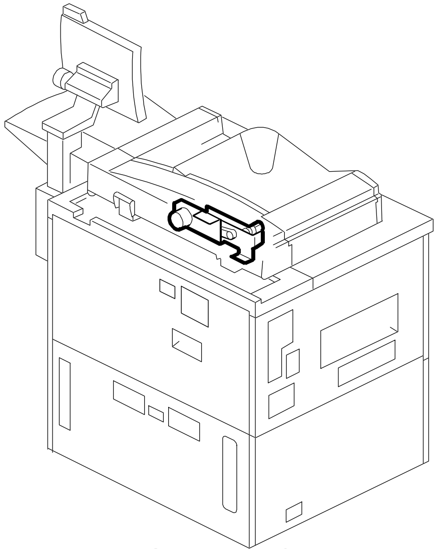

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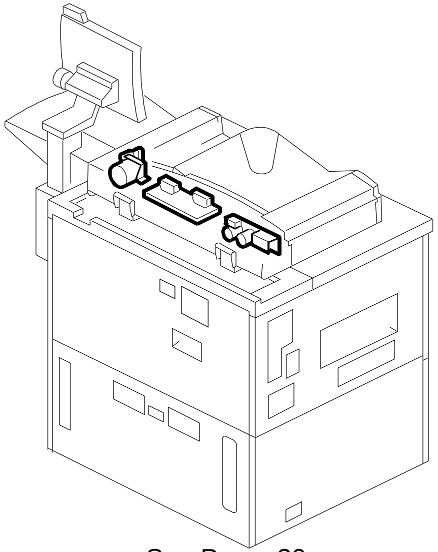
13.DF DRIVE SECTION 2 (A294)



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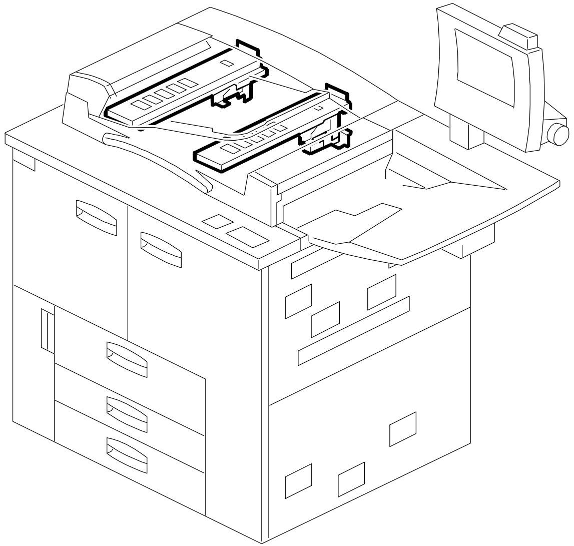

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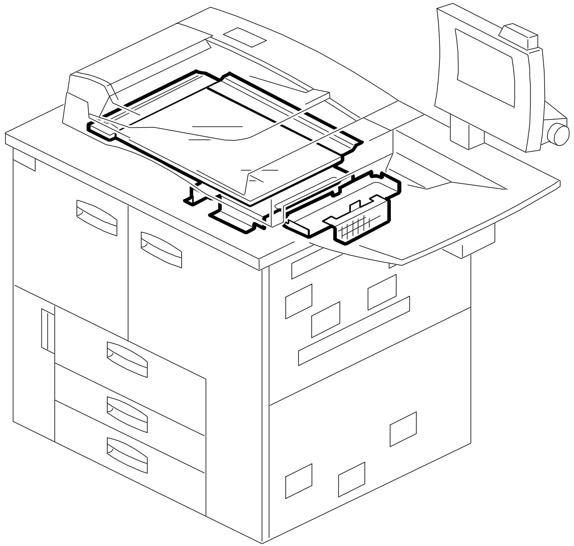
15.OPTICS SECTION 1 (A294)



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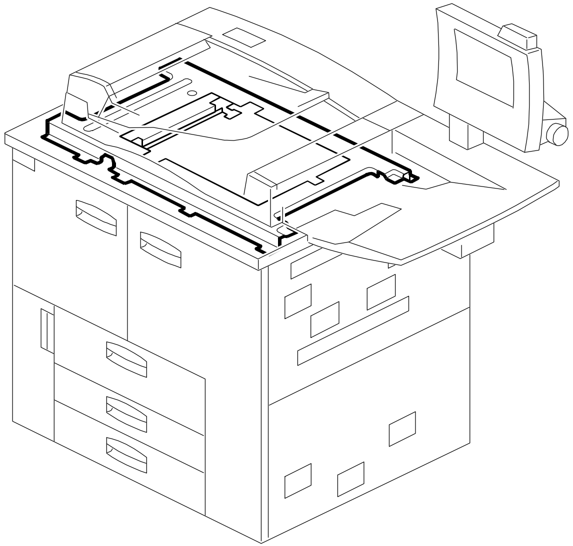

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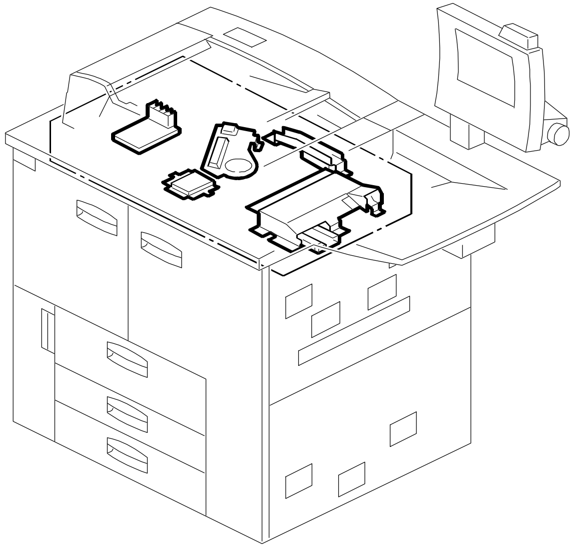

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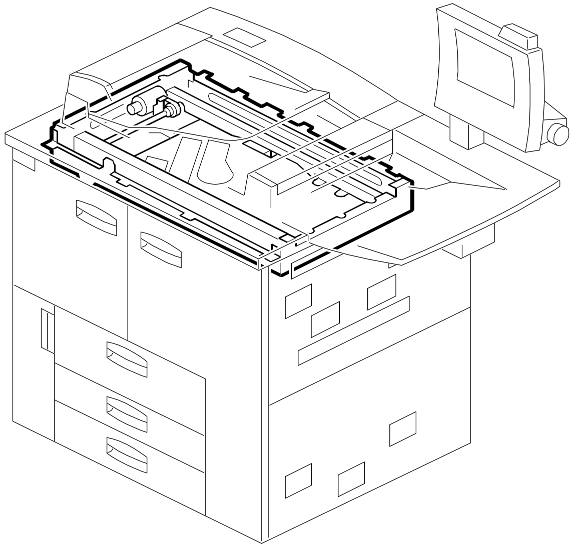

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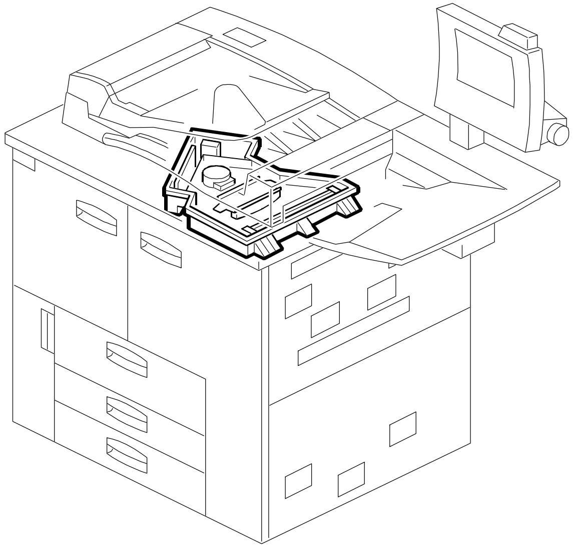

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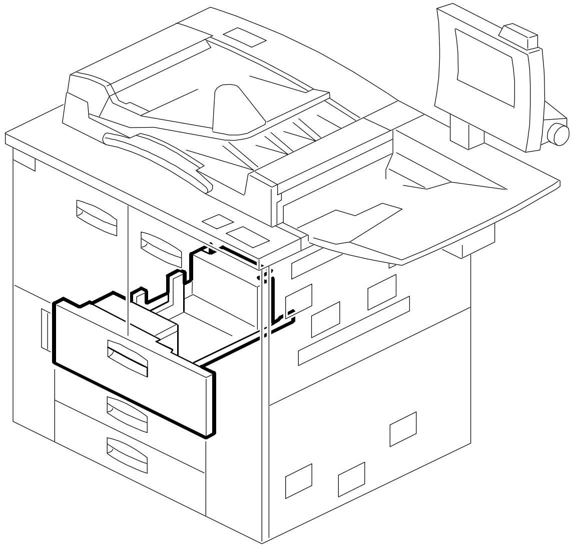
20.TANDEM TRAY 1 (A294)



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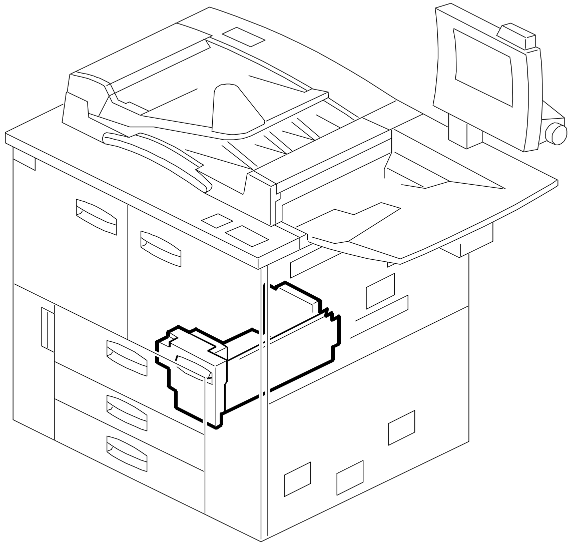
21.TANDEM TRAY 2 (A294)



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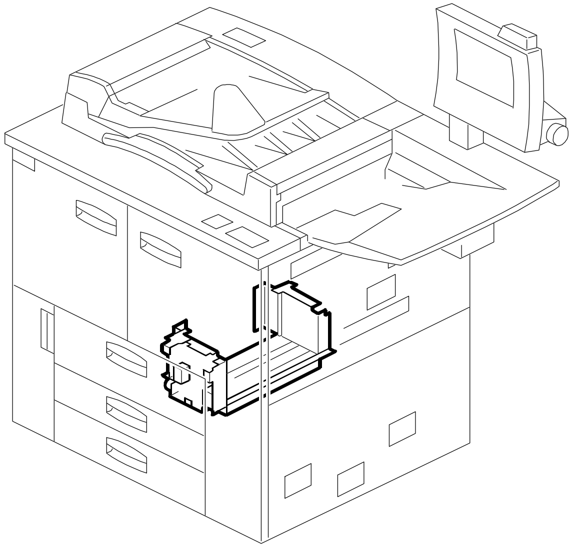

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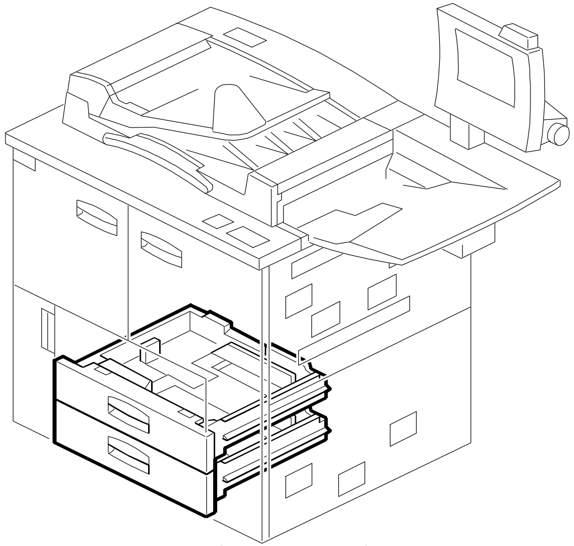
23.UNIVERSAL TRAY (A294)



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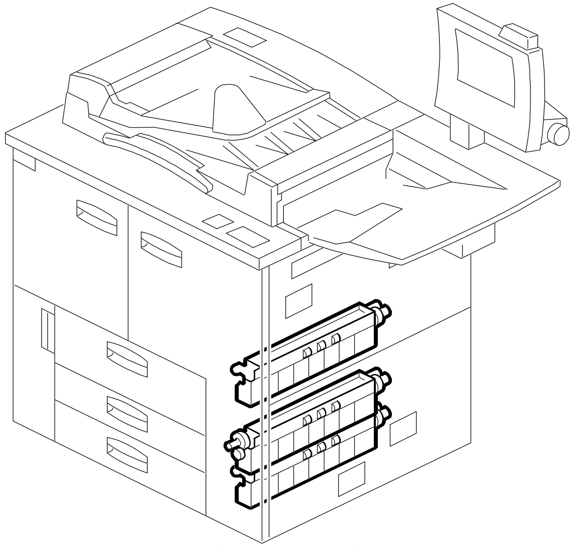
24.PAPER FEED UNIT 1 (A294)



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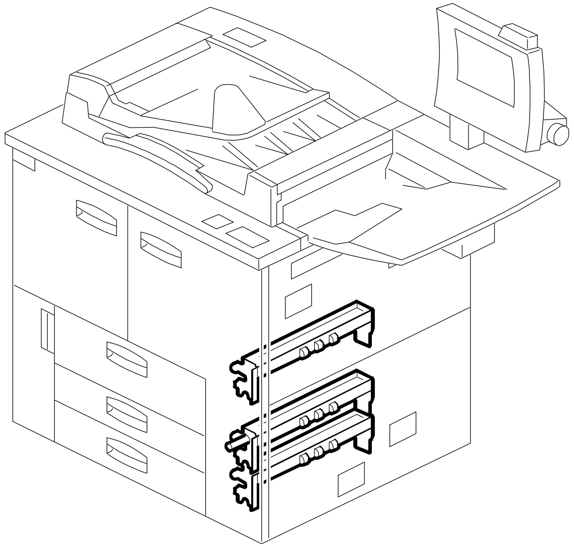

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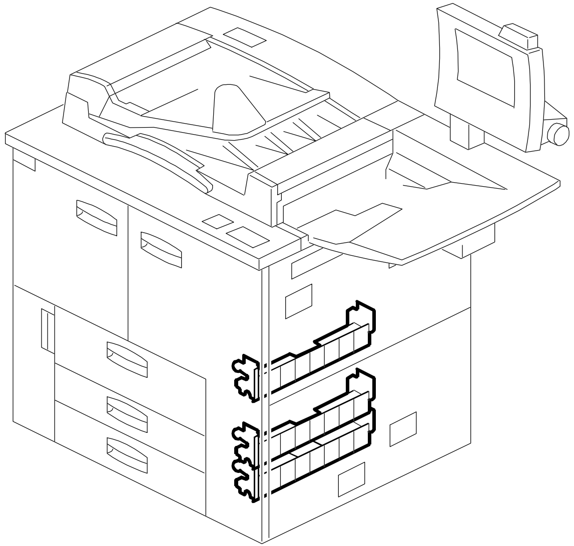

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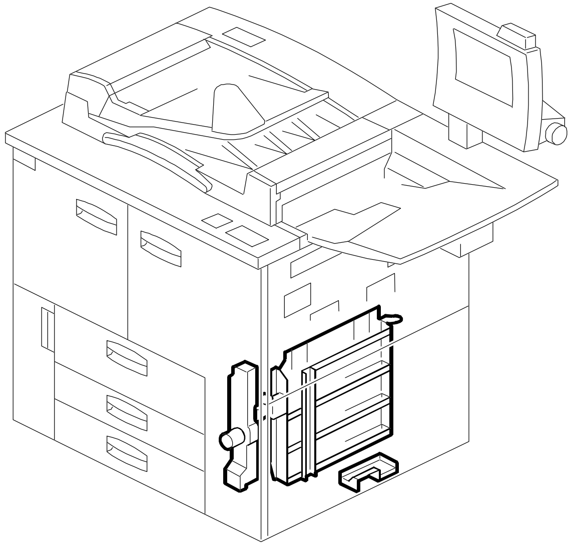
27.VERTICAL TRANSPORT (A294)



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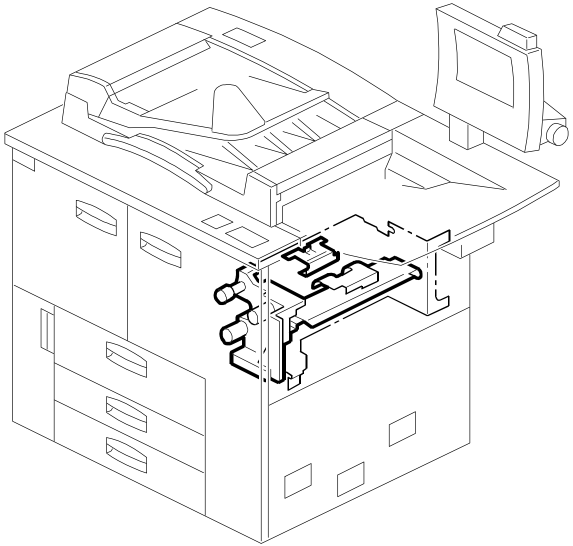
28.PAPER REGISTRATION 1 (A294)



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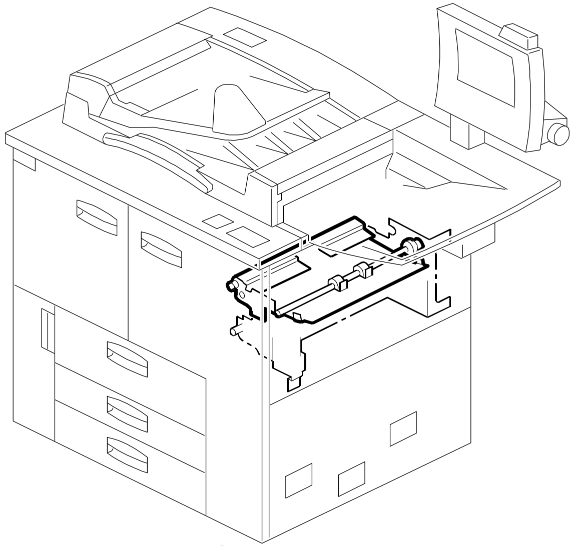

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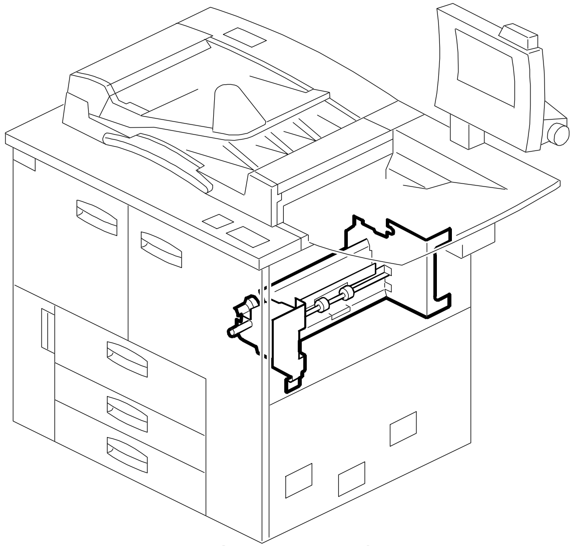

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LOCATION OF UNIT

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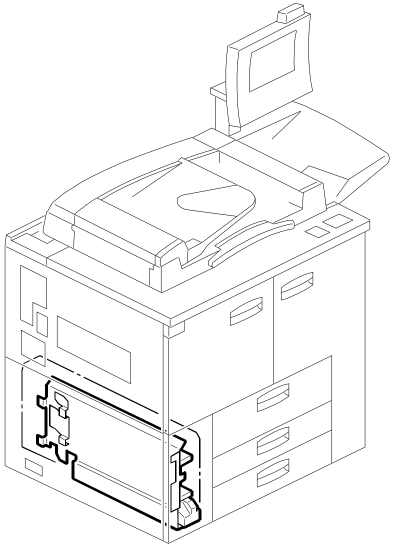

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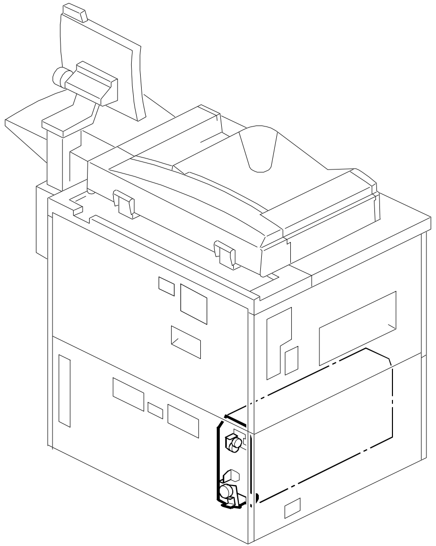

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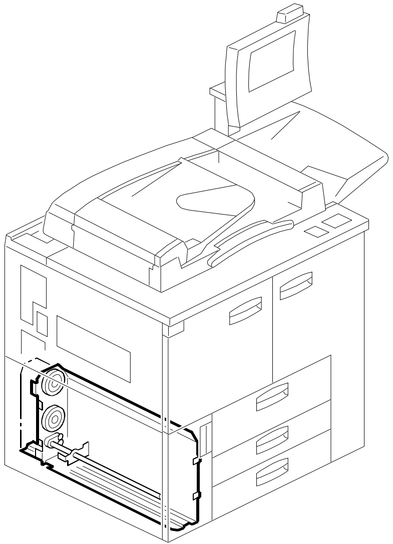
33.TONER SUPPLY UNIT 1 (A294)



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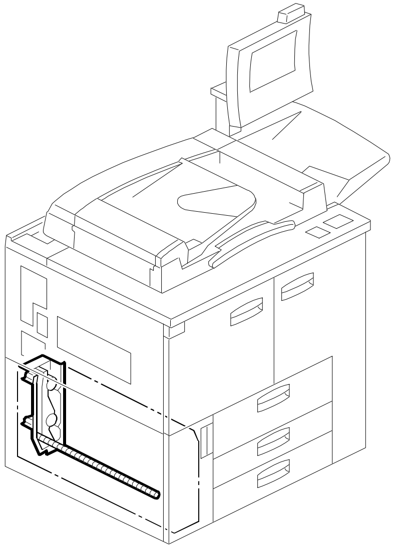

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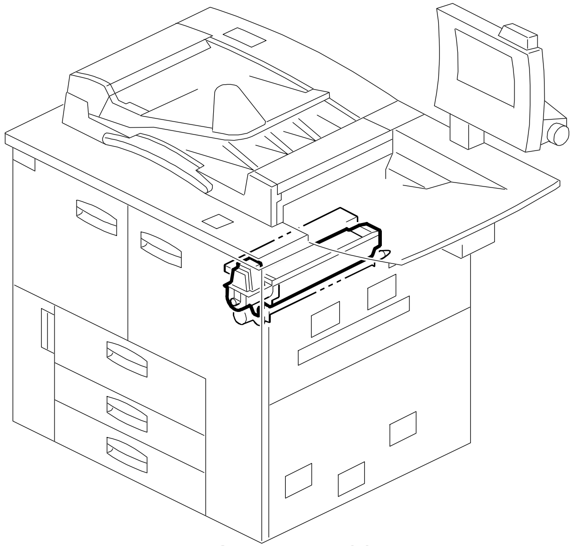

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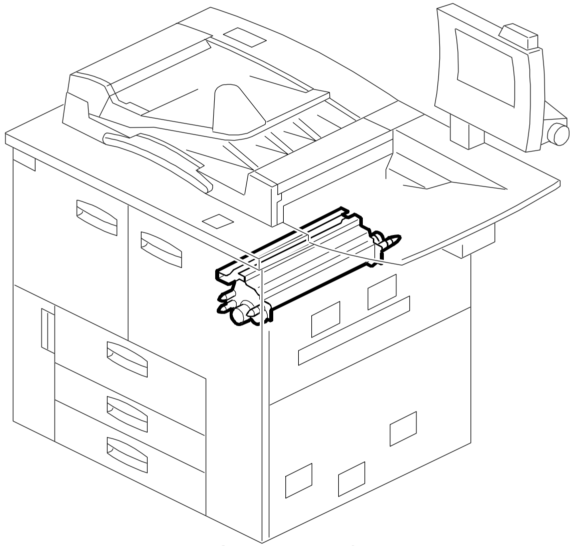
36.DEVELOPMENT UNIT 1(A294)



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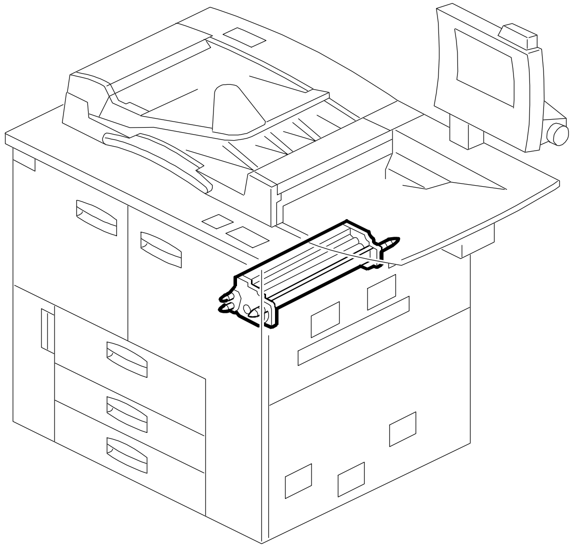
37.DEVELOPMENT UNIT 2(A294)



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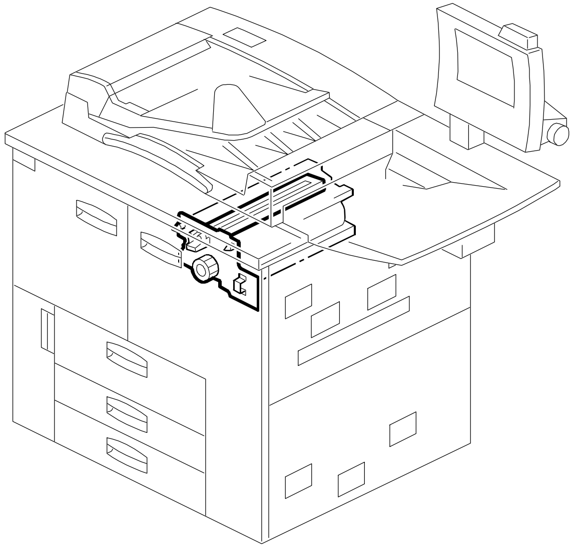

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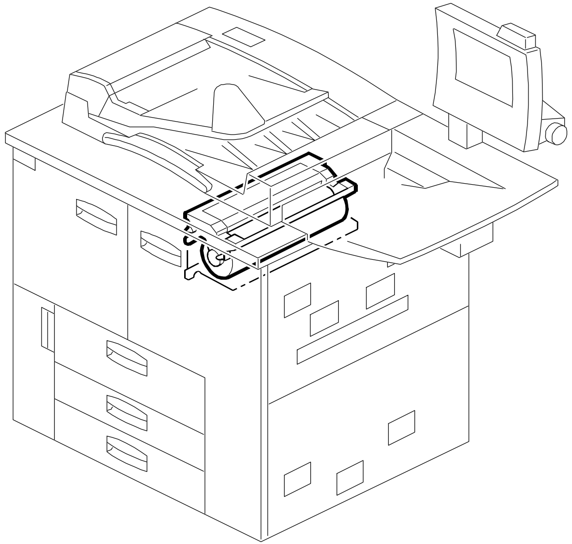

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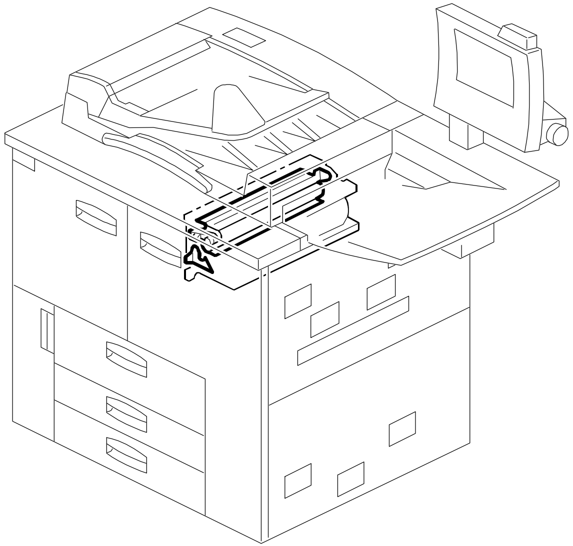

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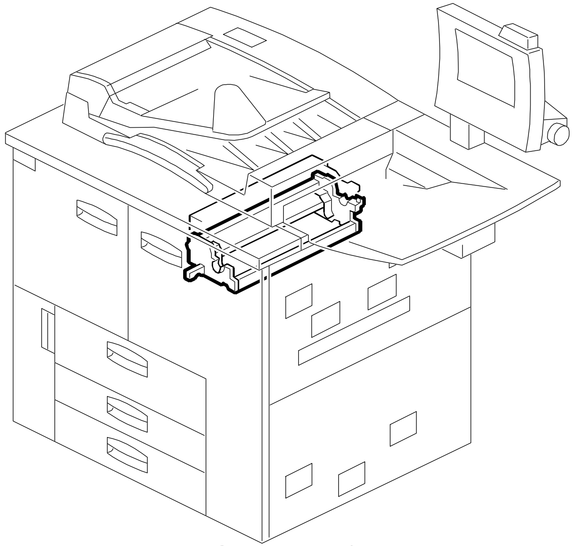

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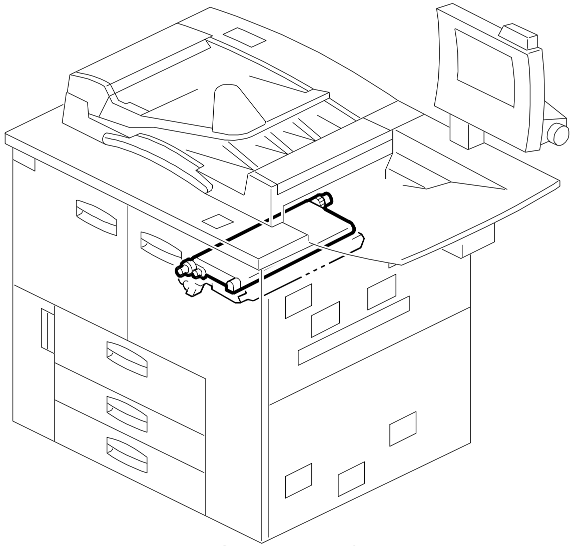
42.TRANSFER BELT UNIT 1 (A294)



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LOCATION OF UNIT

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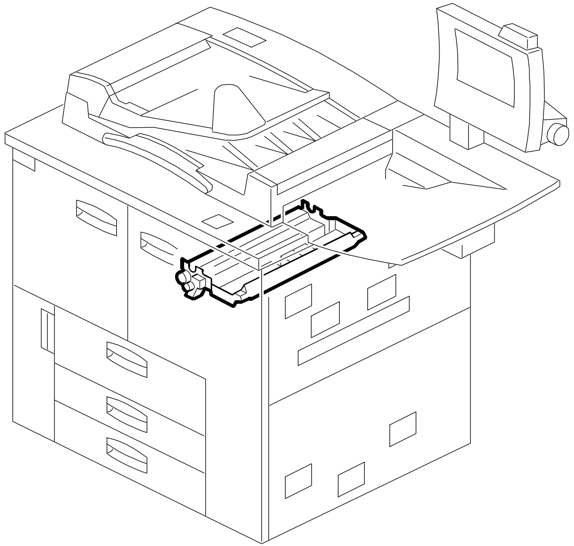

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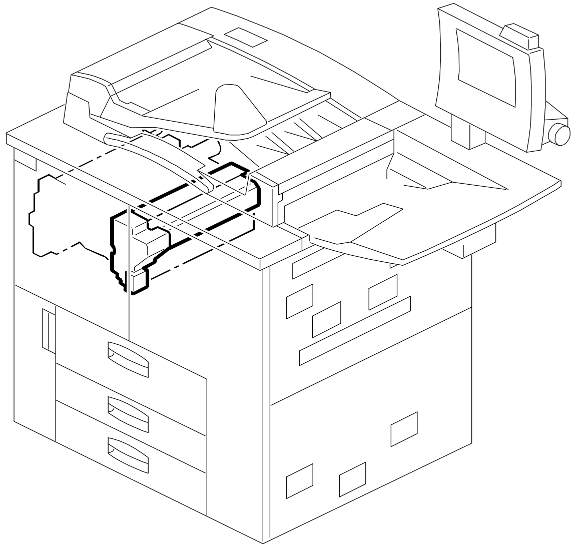
44.FUSING UNIT 1 (A294)



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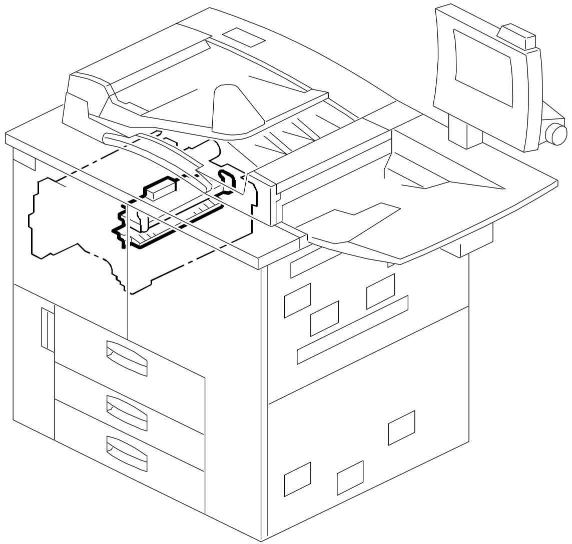

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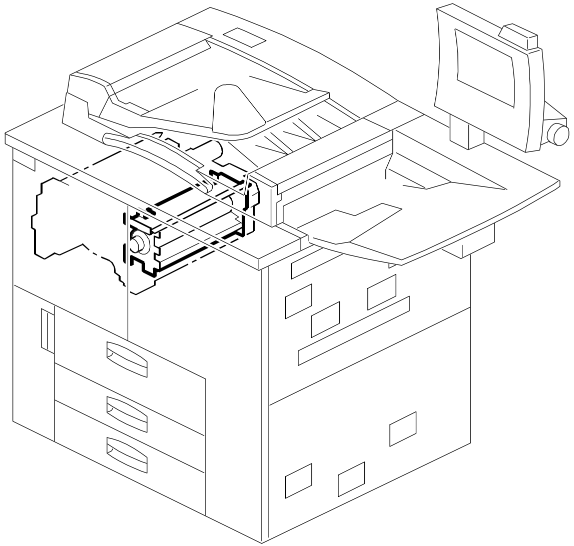

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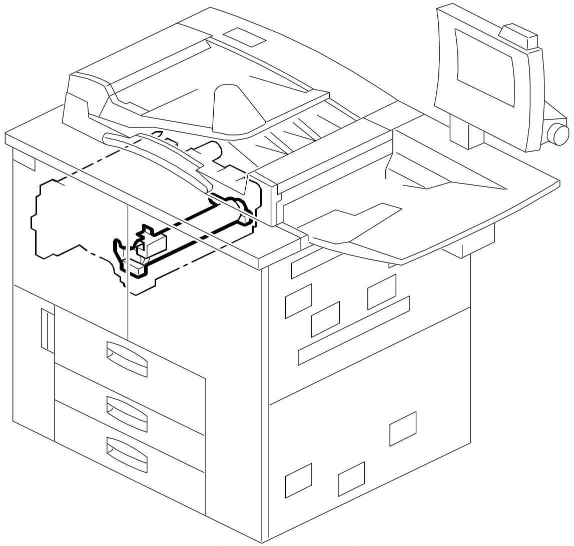

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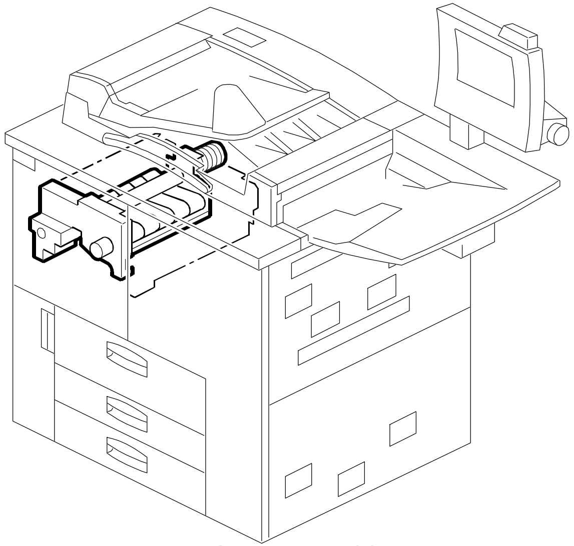

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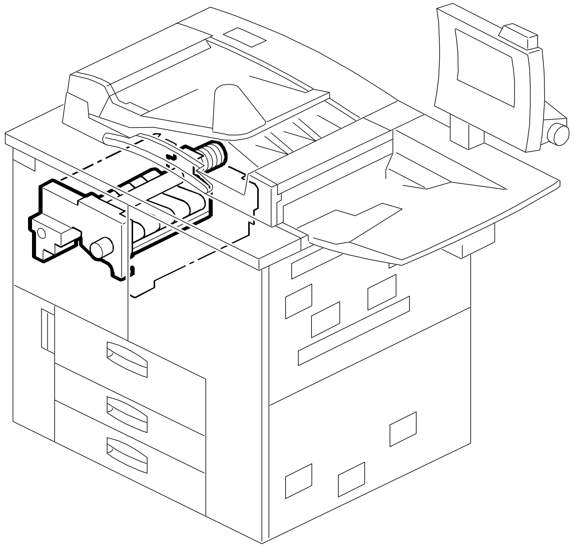
49.PAPER EXIT SECTION 2 (A294)



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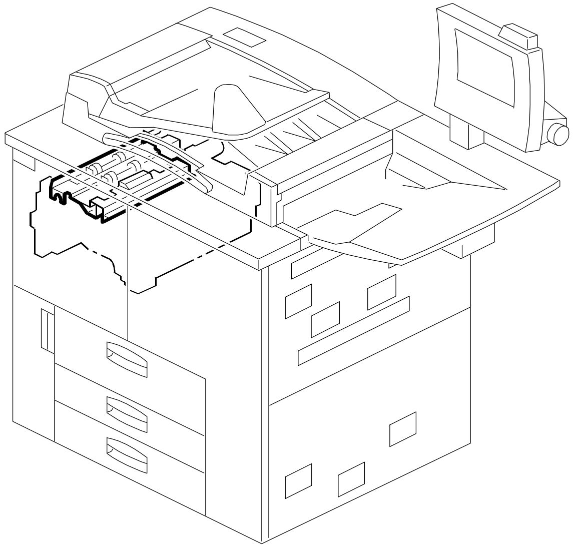

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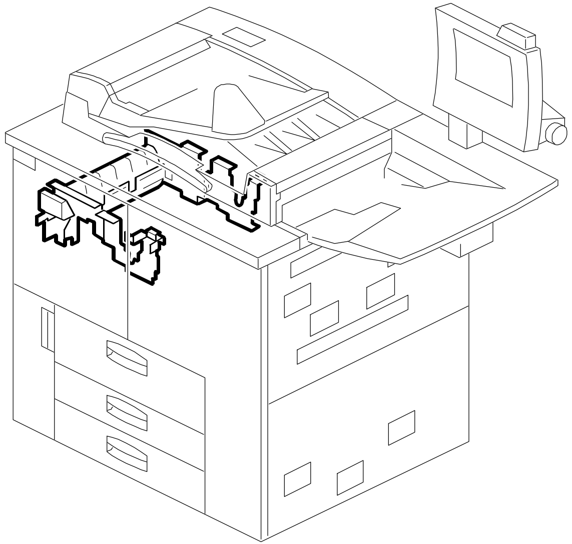
51.PAPER EXIT SECTION 4 (A294)



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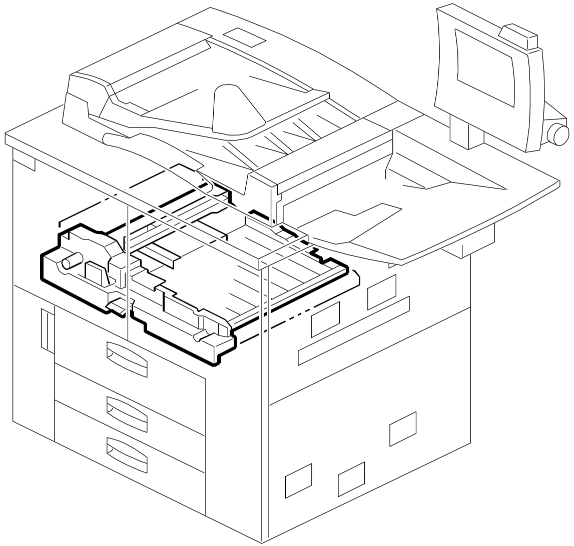
52.DUPLEX UNIT 1 (A294)



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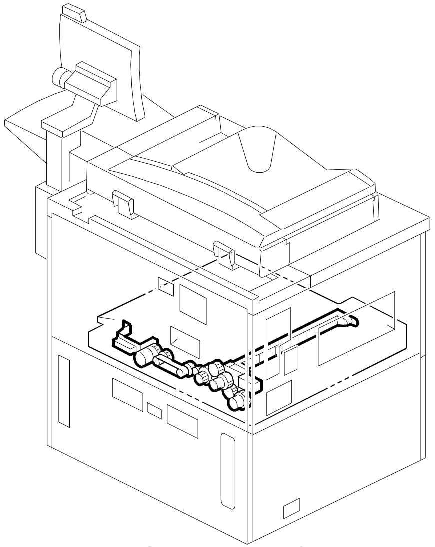

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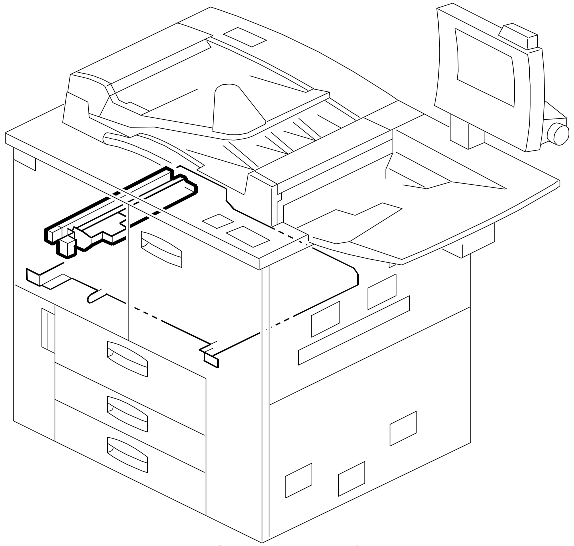
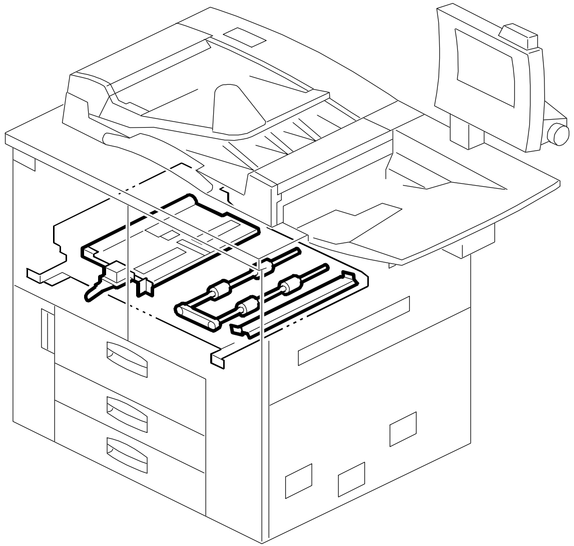
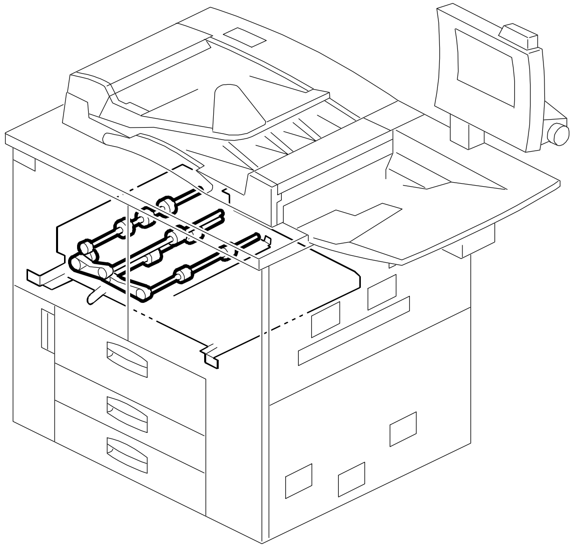
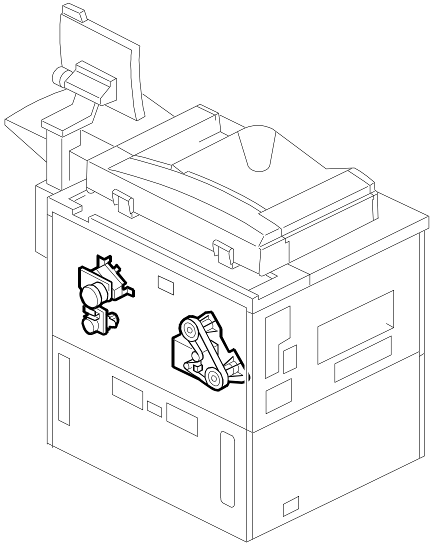
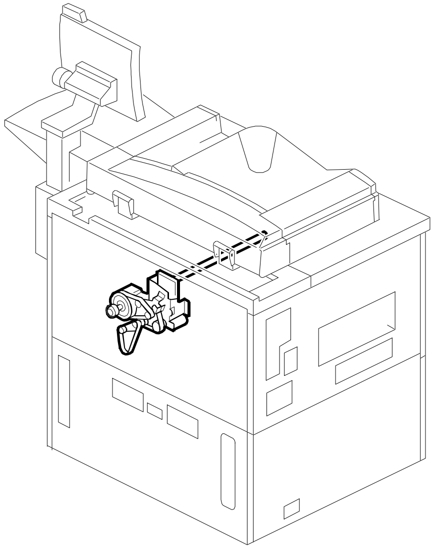
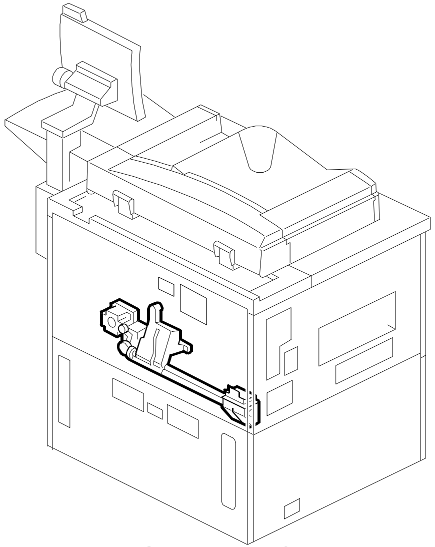
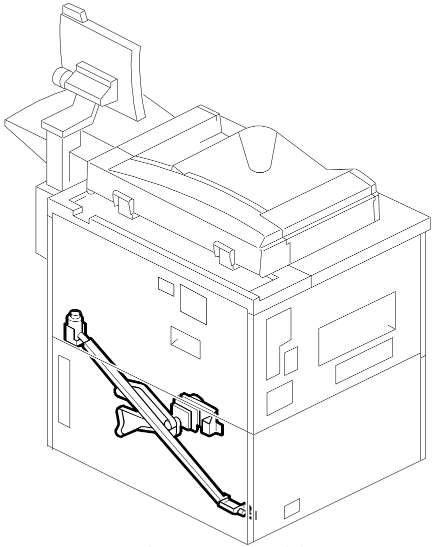
54.DUPLEX UNIT 3 (A294)



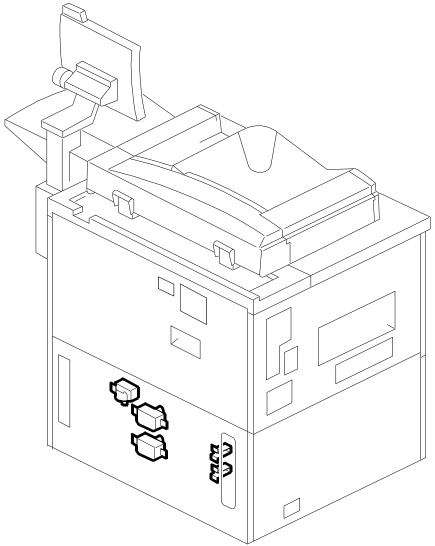
See Page 121

LOCATION OF UNIT

55.DUPLEX UNIT 4 (A294)  See Page 123	56.DUPLEX UNIT 5 (A294)  See Page 125	57.DRIVE SECTION 1 (A294)  See Page 127
58.DRIVE SECTION 2 (A294)  See Page 129	59.DRIVE SECTION 3 (A294)  See Page 131	60.DRIVE SECTION 4 (A294)  See Page 133

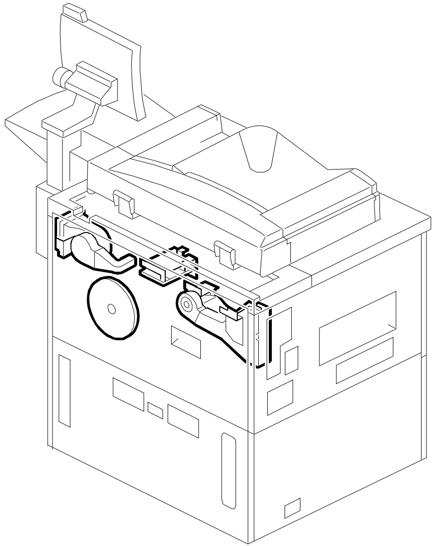
LOCATION OF UNIT

61.DRIVE SECTION 5 (A294)



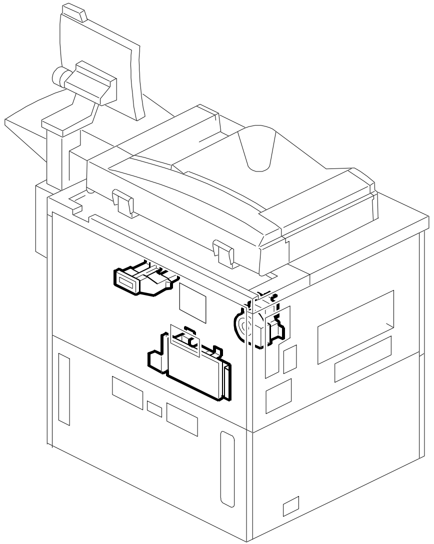
See Page 135

62.ELECTRICAL SECTION 1 (A294)



See Page 137

63.ELECTRICAL SECTION 2 (A294)



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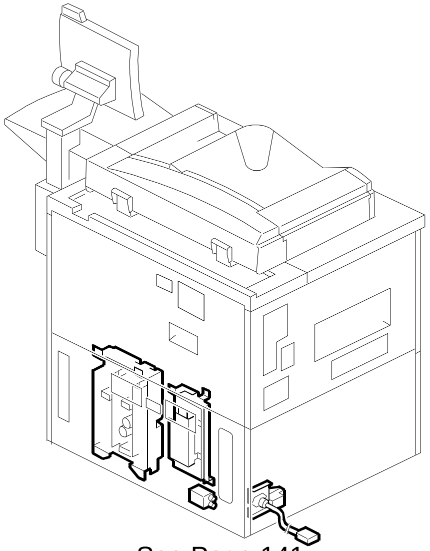
64.ELECTRICAL SECTION 3 (A294)



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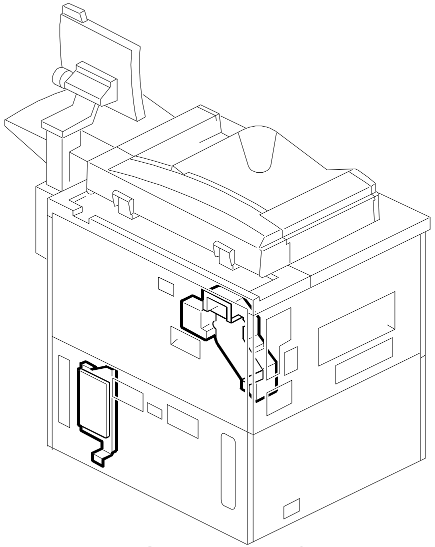
65.ELECTRICAL SECTION 4 (A294)



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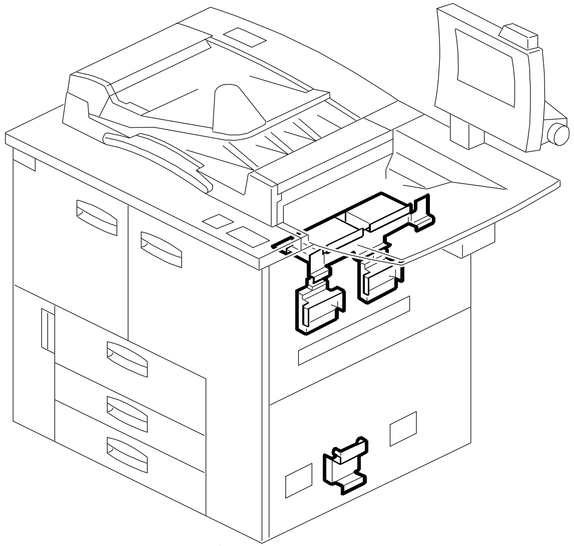
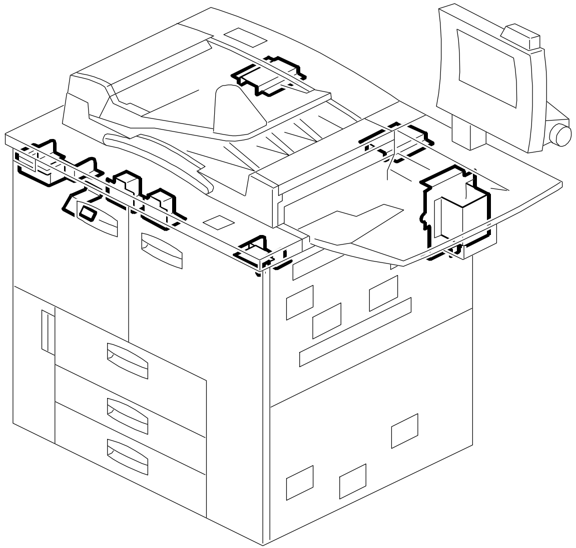
66.ELECTRICAL SECTION 5 (A294)



See Page 145

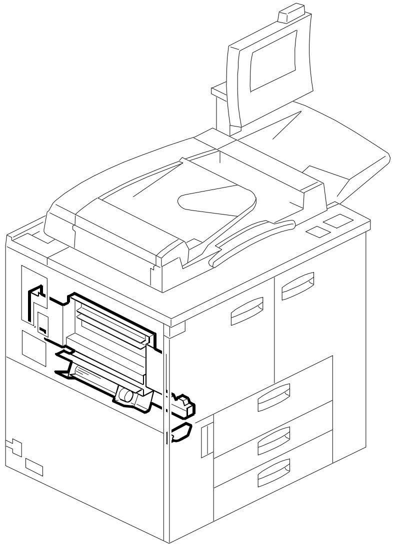
LOCATION OF UNIT

67.ELECTRICAL SECTION 6 (A294)



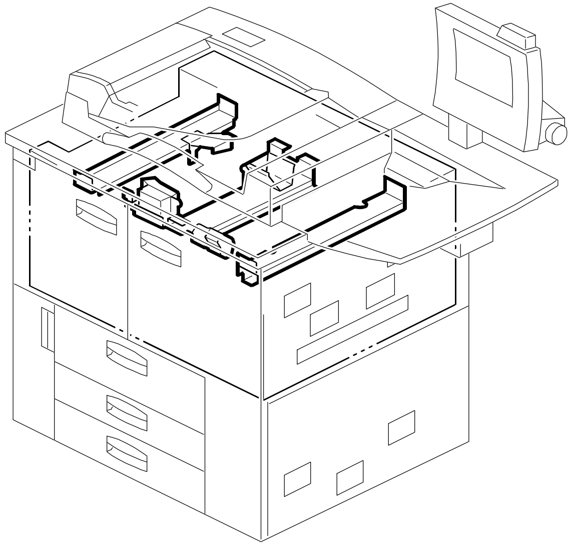
See Page 147

68.FRAME SECTION 1 (A294)



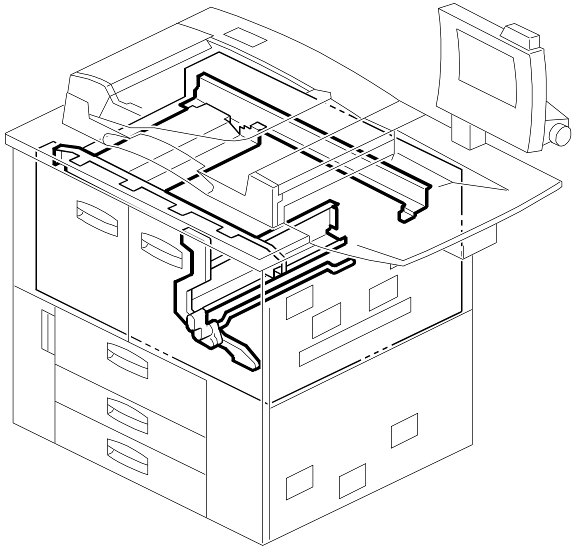
See Page 149

69.FRAME SECTION 2 (A294)



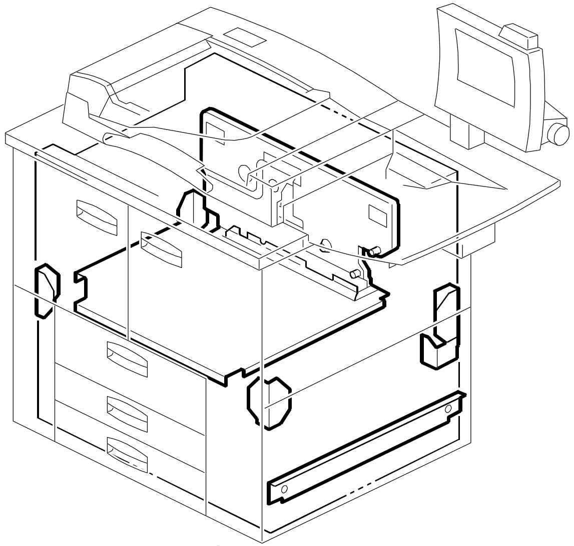
See Page 151

70.FRAME SECTION 3 (A294)



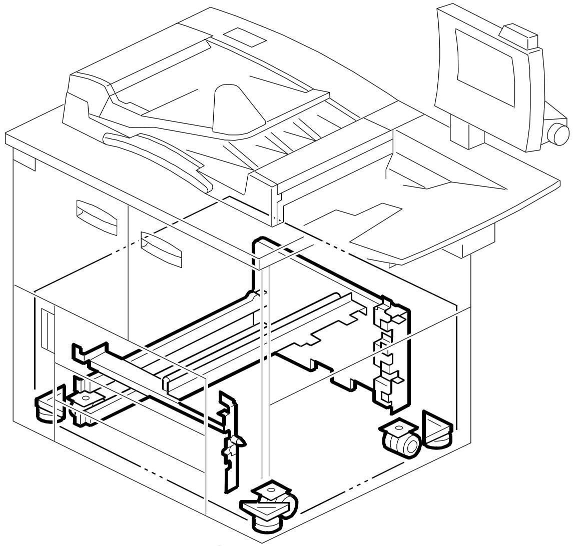
See Page 153

71.FRAME SECTION 4 (A294)



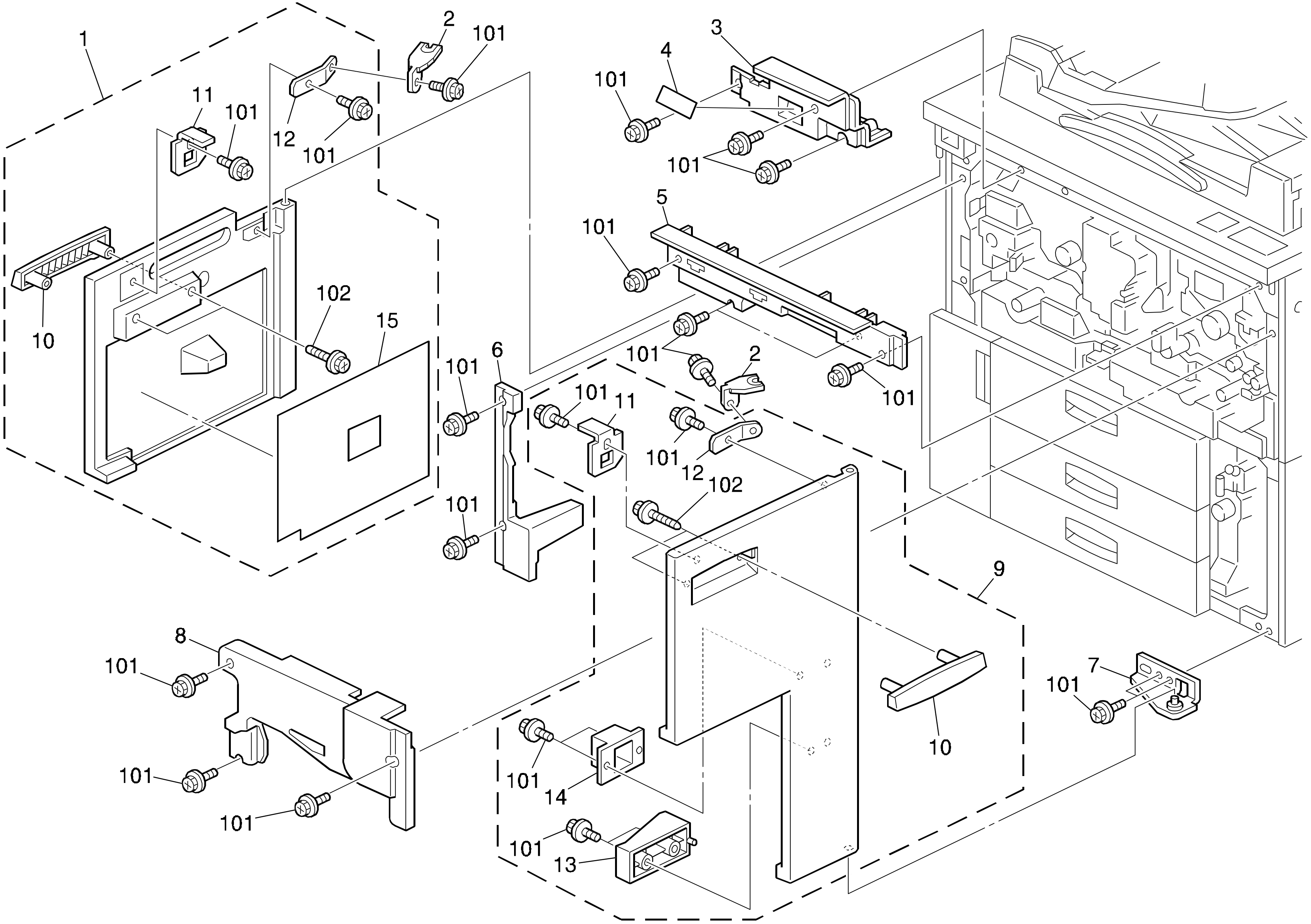
See Page 155

72.FRAME SECTION 5 (A294)



See Page 157

1.EXTERIOR 1 (A294)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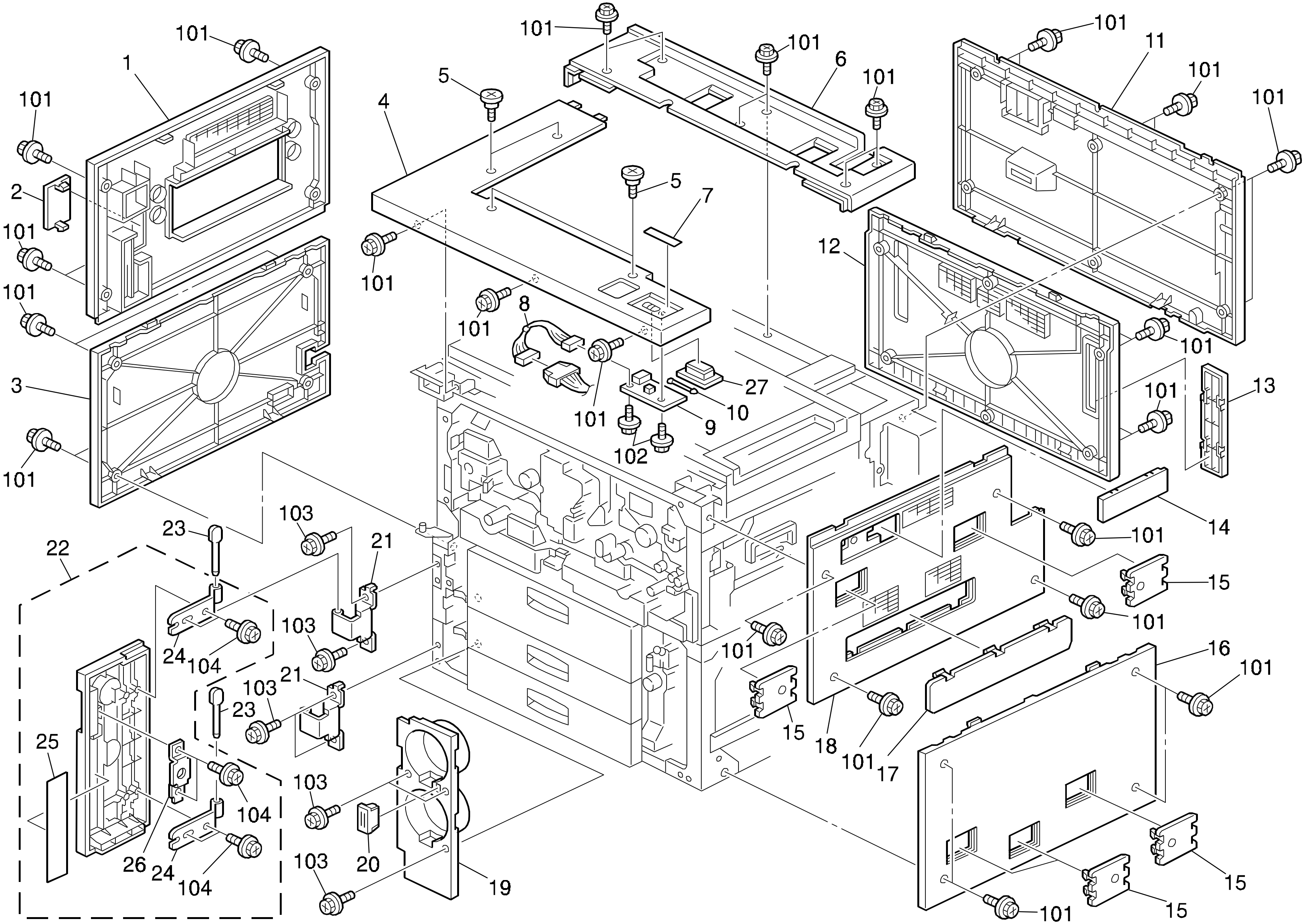
1.EXTERIOR 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 1278	Left Front Door (RIC)	1
1	A294 6914	Left Front Door (NRG/SVN/LAN)	1
1	A294 6915	Left Front Door (INF)	1
2	A079 1406	Upper Door Spacer	2
3	A294 1377	Inner Cover - Left Upper	1
4	A294 1378	Decal - Total Counter	1
5	A294 1375	Inner Cover - Right Upper	1
6	A294 1380	Inner Cover - Left	1
7	A294 1356	Lower Right Hinge	1
8	A294 3699	Drum Inner Cover	1
9	A294 1285	Right Front Door (RIC)	1
9	A294 6911	Right Front Door (NRG)	1
9	A294 6910	Right Front Door (SVN/LAN)	1
9	A294 6912	Right Front Door (INF)	1
10	A294 1281	Front Door Grip	2
11	A294 1292	Door Switch Bracket	2
12	A294 1282	Front Door Spcer Bracket	2
13	A294 1294	Vertical Guide Stopper	1
14	A079 1395	Left Door Stopper	1
15	A294 1300	Decal - Misfeed Removal	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0450 4014B	Tapping Screw - 4x14	

2.EXTERIOR 2 (A294)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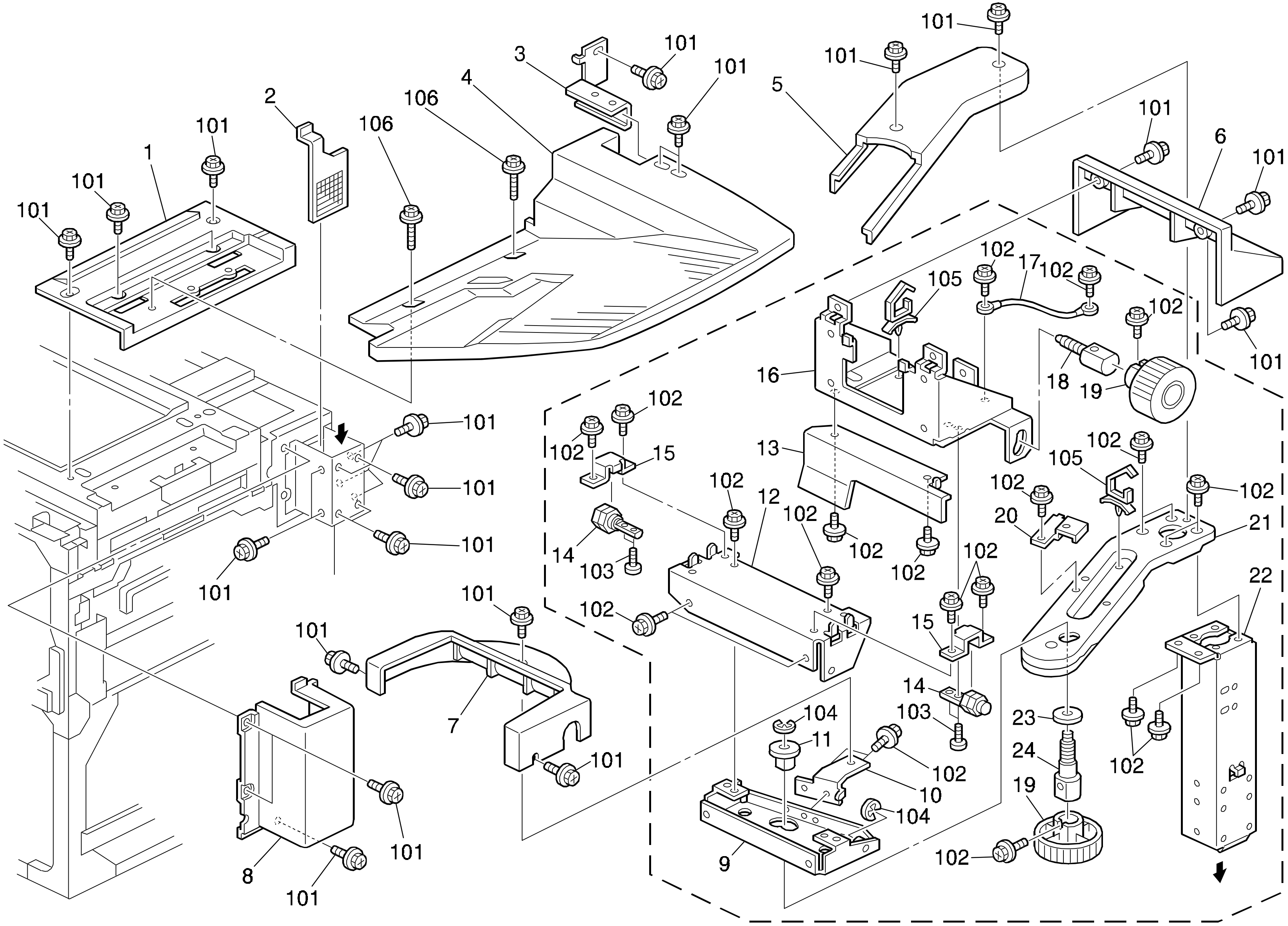
2.EXTERIOR 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 1320	Cover - Left Upper	1
2	A229 1333	Connector Cap	1
3	A294 1326	Lower Left Cover	1
4	A294 1258	Upper Cover	1
5	5201 1796	Stepped Screw - M4	4
6	A294 1261	Cover - Rear Upper	1
7	A294 1305	Decal - Main Switch - English (USA)	1
7	A294 1306	Decal - Main Switch - Symbol (EU)	1
8	A294 5494	Harness - Main Switch	1
9	A294 5330	Board - Main Switch	1
10	A229 1465	LED Guide	1
11	A294 1330	Cover - Upper Rear	1
12	A294 1336	Cover - Under Rear	1
13	A294 1337	Cap - Control Unit	1
14	A229 1331	Key Counter Cap	1
15	A294 1312	Cap - Joint LCT	5
16	A294 1316	Cover - Right Under	1
17	A294 1313	Cover - LCT	1
18	A294 1310	Cover - Right Upper	1
19	A294 3491	Inner Cover - Toner Bank	1
20	H306 1317	Cover Magnet	1
21	A294 1271	Hinge - Lower Front Door	2
22	A294 1267	Lower Front Door	1
23	A096 1337	Hinge Shaft - Lower Left	2
24	A294 1270	Lower Front Hinge	2
25	A294 1272	Decal - Toner Bank	1
26	A294 1268	Door Catch Plate	1
27	A229 1459	Keytop - Power Source	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008H	Tapping Screw - 4x8	
102	0450 3006B	Tapping Screw - M3x6	
103	0451 4008B	Philips Tapping Screw - M4x8	
104	0450 4008B	Tapping Screw - 4x8	

3.EXTERIOR 3 (A294)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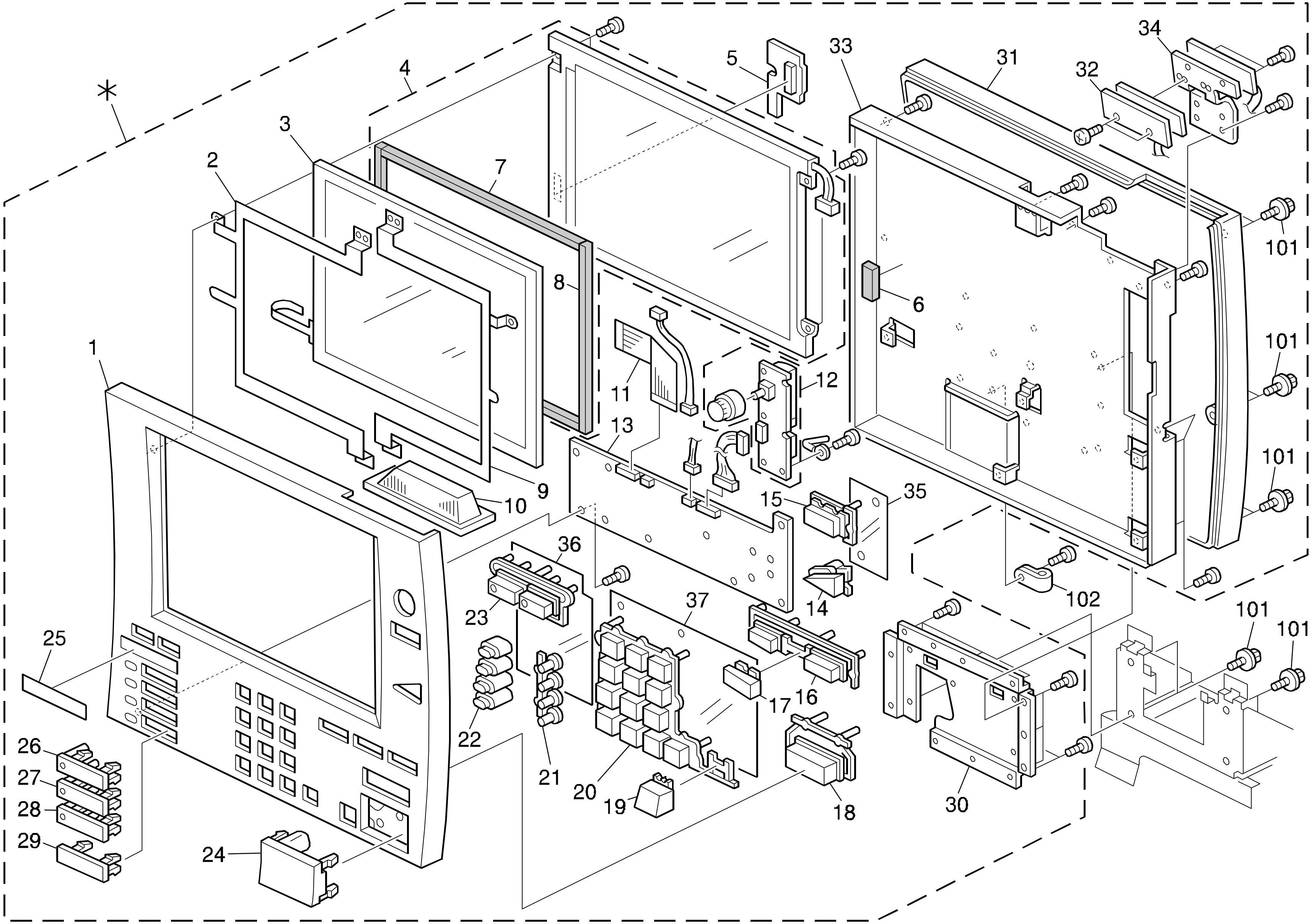
3.EXTERIOR 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 1264	Cover - Right Upper	1
2	A294 2123	Dust Filter	1
3	A294 1266	Exit Bracket	1
4	A294 1265	ADF Exit Tray	1
5	A294 1424	Cover - Operation Arm	1
6	A294 1422	Cover - Upper Operation Hinge	1
7	A294 1423	Cover - Under Operatin Hinge	1
8	A294 1421	Cover - Operation Hinge	1
9	A294 1434	Lower Support	1
10	A294 1445	Bracket - Cover	1
11	A294 1449	Bushing - Operation Panel	1
12	A294 1437	Supporting Plate - Operation Panel	1
13	A294 1430	Rear Cover - Operation Unit	1
14	A294 1429	Hinge - Operation Unit	2
15	A294 1438	Hinge Fixing Plate	2
16	A294 1439	Operation Unit Fixing Plate	1
17	A258 5523	Grounding Wire	1
18	A294 1447	Shaft - Upper Operation Knob	1
19	A294 1440	Knob - Operation Panel	2
20	A294 1446	Bracket - Arm Cover	1
21	A294 1425	Operation Unit Arm	1
22	A294 1433	Arm Frame	1
23	A294 1441	Spacer - Operation Panel	1
24	A294 1448	Shaft - Under Operation Knob	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008H	Tapping Screw - 4x8	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	0313 0080B	Philips Pan Head Screw - M3x8	
104	0720 0060B	Retaining Ring - M6	
105	1105 0229	Clamp	
106	0451 4012H	Tapping Screw M4x12	

4.OPERATION PANEL (A294)



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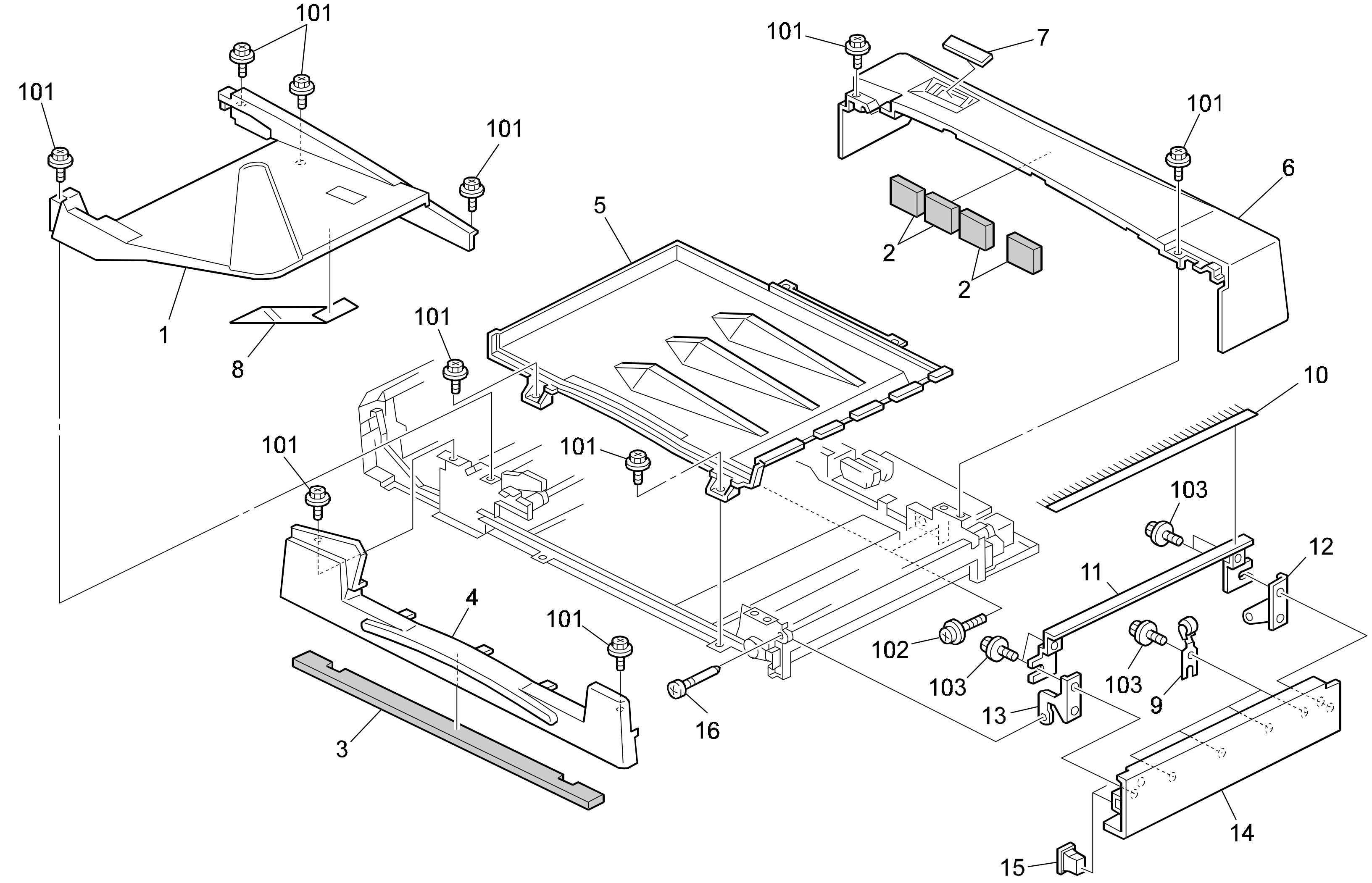
4.OPERATION PANEL (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 1451	Operation Unit - LT	1
*	A294 1452	Operation Unit - A4	1
1	A294 1472	Front Cover - Operation Unit - LT	1
1	A294 1473	Front Cover - Operation Unit - A4	1
2	A294 1535	Grounding Plate - Left	1
3	A294 5550	Touch Panel - 10.4inch	1
4	A294 1530	LCD - Display	1
5	A294 1500	LED Board	1
6	A294 1532	Cable Holder	1
7	A259 1482	Side Sponge	2
8	A259 1481	Lengthwise Sponge	2
9	A294 1534	Grounding Plate - Right	1
10	A294 1492	Lens - LED	1
11	A294 1533	Flat Cable	1
12	A294 1491	PCB - Inverter	1
13	A294 1490	PCB - Operation Panel	1
14	A294 1482	Key Top - Language Selection	1
15	A176 1494	Keytop - Interrupt	1
16	A294 1478	Key Top - Standby	1
17	A294 1540	Key Top - Clear	1
18	A294 1476	Key Top - Stop	1
19	A294 1479	Key Top - Proof	1
20	A294 1477	Key Top - 10 Key	1
21	A294 1489	Spacer - Key Top	1
22	A294 1488	Lens - Application	1
23	A294 1487	Key Top - Counter	1
24	A294 1475	Key Top - Start	1
25	A294 1499	Display Film - LED	1
26	A294 1541	Key Top Application 1 - LT	1
26	A294 1545	Key Top - Application 1 - A4	1
27	A294 1542	Key Top Application 2 - LT	1
27	A294 1546	Key Top Application 2 - A4	1
28	A294 1543	Key Top Application 3 - LT	1
28	A294 1547	Key Top - Application 3 - A4	1
29	A294 1486	Cap - Key Top	1

Index No.	Part No.	Description	Q'ty Per Assembly
30	A294 1494	Frame - Operation Panel	1
31	A294 1474	Rear Cover - Operation Unit	1
32	A294 1493	PCB - LED	1
33	A294 1531	Operation Panel Frame	1
34	A294 1495	Fixing Plate - Operation Panel	1
35	A294 1498	Cover Sheet - 3	1
36	A294 1496	Cover Sheet - 1	1
37	A294 1497	Cover Sheet - 2	1
101	0451 3008H	Tapping Screw - 3x8	
102	1105 0310	Harness Clamp - LWS-1S	

5.DF EXTERIOR (A294)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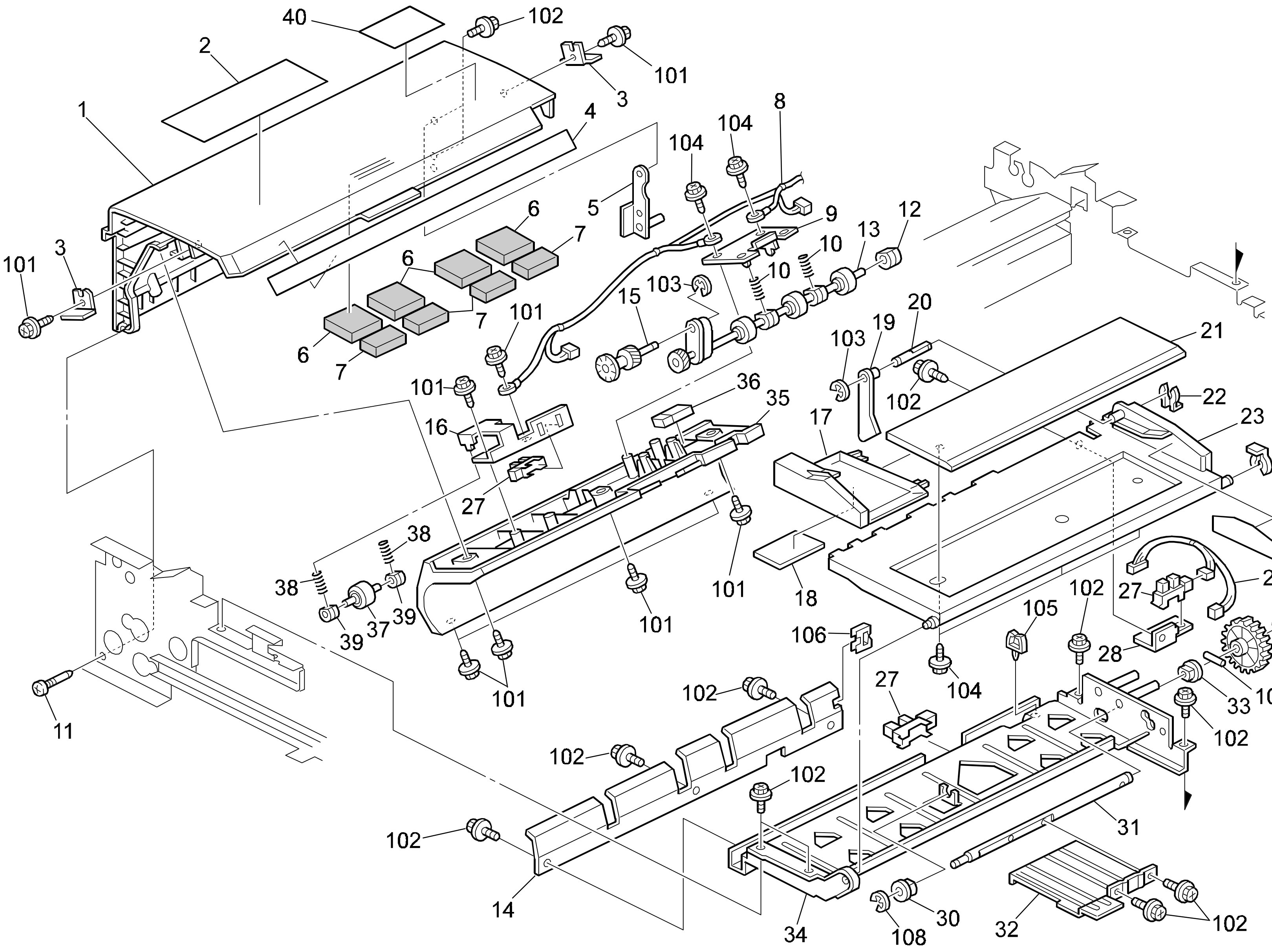
5.DF EXTERIOR (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A806 1821	Original Table	1
2	B301 4425	Noise Reduction Pad	4
3	B301 4411	Noise Reduction Pad	1
4	A806 1712	Front Cover	1
5	A806 1792	Original Table Cover	1
6	B301 1731	Rear Cover	1
7	A806 4341	Display Panel	1
8	B301 1835	Original Holder	1
9	A548 1241	Driven Roller Ass'y	4
10	AA12 0032	Antistatic Brush	1
11	A806 3266	Discharge Brush Bracket	1
12	A806 3261	Inner Back Cover Bracket	1
13	A806 3251	Exit Cover Bracket	1
14	A806 1781	Exit Cover	1
15	G012 1531	Magnet	2
16	5446 2824	Screw - Duplex Guide Plate	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 3008B	Tapping Screw - M3x8	
102	0951 5010B	Philips Screw With Washer - M5x10	
103	0450 4012B	Tapping Screw - M4x12	

6.ORIGINAL FEED 1 (A294)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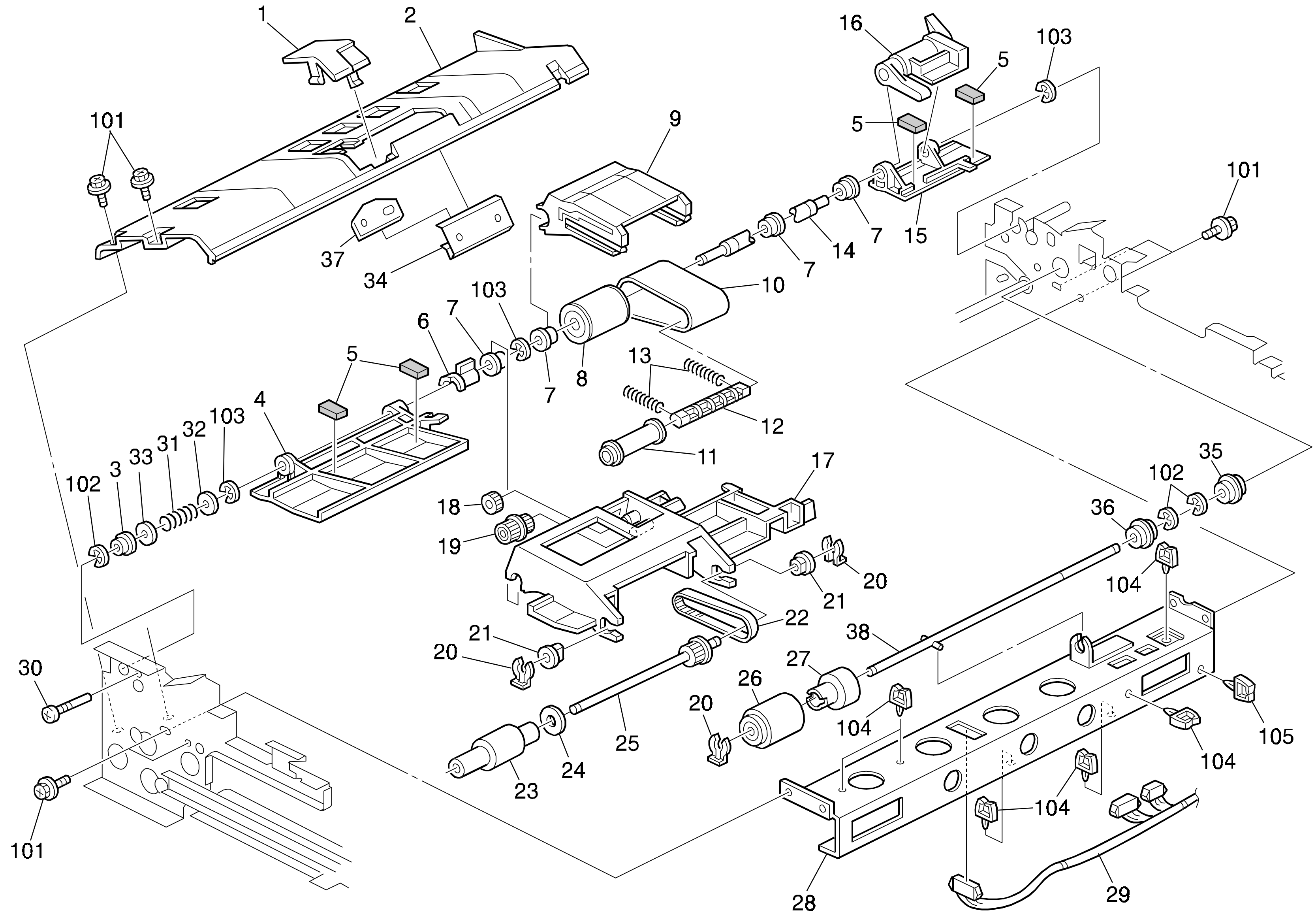
6.ORIGINAL FEED 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A806 1761	Paper Feed Cover	1
2	A806 4311	Decal - Misfeed Removal	1
3	A806 1371	Magnet Catch - Paper Feed Cover	2
4	A806 4331	Decal - Original Size	1
5	A806 1361	Cover Bracket	1
6	B301 4421	Noise Reduction Pad - Right	4
7	B301 4422	Noise Reduction Pad - Left	4
8	B301 5305	DC Relay Harness	1
9	A806 1181	Pressure Roller Bracket - Pull Out	1
10	B301 4211	Spring	2
11	5446 2824	Screw - Duplex Guide Plate	1
12	A680 1661	Bushing - 4mm	1
13	B301 1191	Pull-out Driven Roller	1
14	A806 1335	Original Table Guide Plate	1
15	B301 1195	Gear - 19Z	1
16	B301 1186	Sensor Bracket	1
17	A806 1881	Side Fence	1
18	A376 4599	Side Fence Pad	1
19	B301 1351	Original Feeler	1
20	A806 1353	Feeler Stud	1
21	A680 4151	Side Fence Guide	1
22	5206 2686	Snap Ring	1
23	A806 1861	Original Table Base	1
24	5215 2621	Snap Ring - M6	1
25	A806 4321	Decal - Original Stack Hight	1
26	A806 5790	Original Sensor Harness	1
27	AW02 0075	Photointerruptor	3
28	A806 1356	Original Sensor Bracket	1
29	A806 2281	Gear - Z47	1
30	5053 0447	Bushing - 6mm	1
31	A806 1346	Base Shaft	1
32	A806 1342	Base Lever	1
33	5053 0223	Bushing - 8mm	1
34	A806 1331	Original Table Stay	1
35	B301 1171	Pulley Cover	1

Index No.	Part No.	Description	Q'ty Per Assembly
36	AW01 0076	Photosensor - PS-117D1	1
37	B301 1198	Pull-out Driven Roller - Front	1
38	B301 4222	Spring	2
39	B301 1192	Bushing - 4x6x6	2
40	B301 4351	Caution Decal	1
101	0450 4008B	Tapping Screw - 4x8	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	0720 0030B	Retaining Ring - M3	
104	0452 4008B	Binding Self Tapping Screw - M4x8	
105	1105 0230	Clamp	
106	1105 0328	Harness Clamp - ES-0505	
107	0632 0140G	Parallel Pin	
108	0720 0040B	Retaining Ring - M4	
109	0720 0060B	Retaining Ring - M6	

7.ORIGINAL FEED 2 (A294)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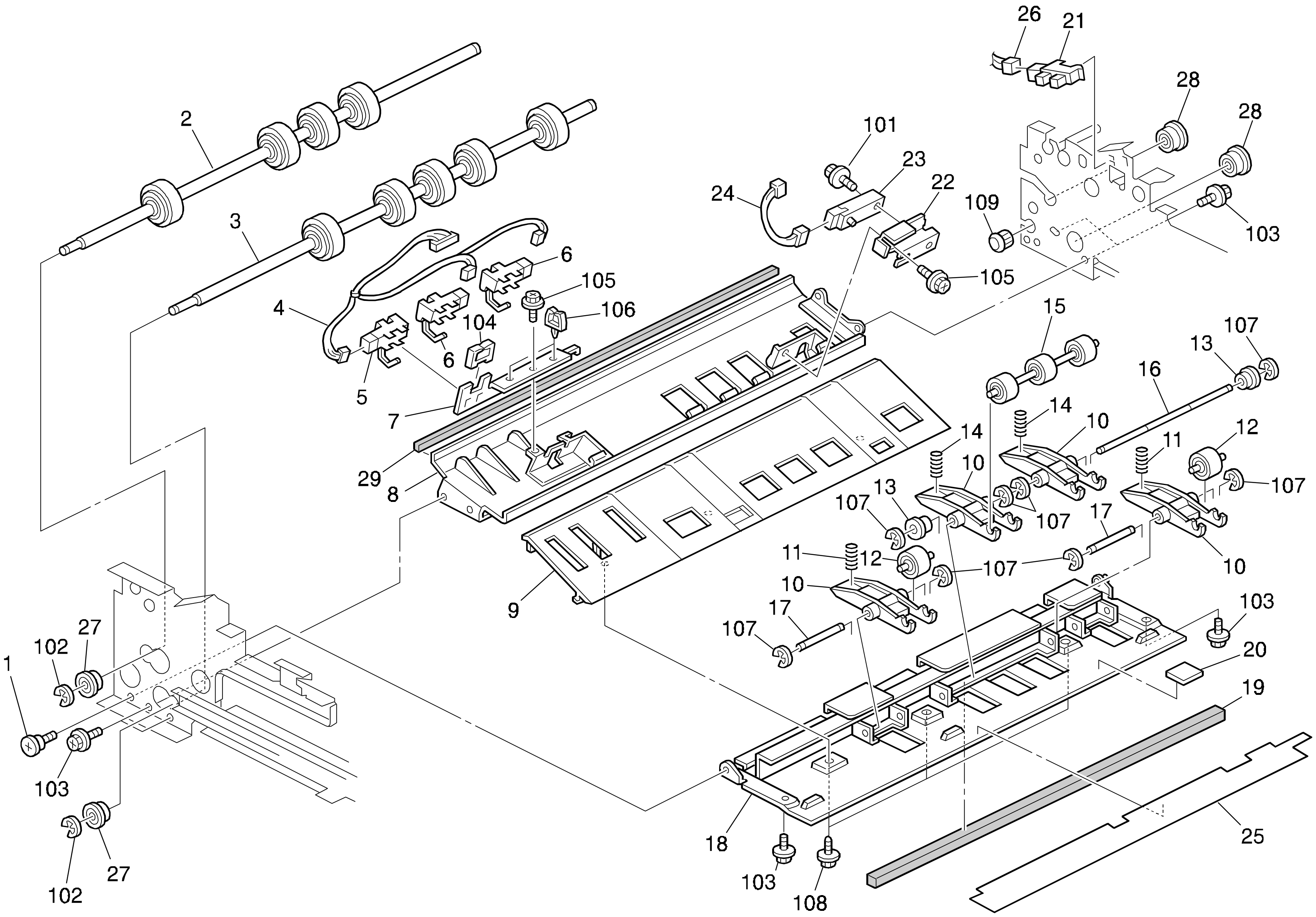
7.ORIGINAL FEED 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A806 1152	Upper Guide Plate	1
2	A806 1151	Upper Guide Plate	1
3	B301 1286	Bushing - 6x10x6	1
4	A806 1161	Entrance Guide Plate - Front	1
5	A806 1163	Guide Plate Cushion	4
6	A680 1621	Feed-in Unit Stopper	1
7	B301 1286	Bushing - 6x10x6	4
8	A806 1293	Feed Belt Drive Roller	1
9	A806 1292	Feed Belt Bracket	1
10	**A806 1295**	**Feed Belt**	**1**
11	A806 1294	Feed Belt Driven Roller	1
12	A806 1298	Transport Belt Roller Shaft	1
13	A806 4261	Spring Belt Guide Roller	2
14	A806 1282	Separation Drive Shaft	1
15	A806 1162	Entrance Guide Plate - Inner	1
16	A806 1328	Release Lever	1
17	A806 1314	Pick-up Roller Bracket	1
18	A806 2271	Gear - Z18	1
19	A806 2151	Timing Pulley - T19/Z23 S2M/M0.6	1
20	5447 2681	Snap Ring	3
21	5053 0447	Bushing - 6mm	2
22	A806 4118	Timing Belt - B40S2M148	1
23	**A806 1321**	**Pickup Roller**	**1**
24	AA13 2171	Spacer - 6x20x1	1
25	A806 2153	Timing Pulley - T27 S2M	1
26	**A680 1671**	**Separation Roller**	**1**
27	A247 2900	Torque Limiter - 53mnxm	4
28	A806 1141	Reverse Roller Stay	1
29	A806 5745	Paper Siz Sensor Harness	1
30	5415 4145	Stud	1
31	AA06 3315	Spring - Belt Drive Shaft	1
32	AA13 2013	Spacer	1
33	A418 1158	Spacer - M6.5x1	1
34	B301 1156	Separation Pad Holder	1
35	A232 3562	Ball Bearing - 6x12x4mm	1
36	A232 3565	Ball Bearing - 6x10x3mm	1
37	B301 1155	Separation Support Pad	1
38	B301 2511	Reverse Roller Shaft	1
101	0451 3008B	Tapping Screw - M3x8	
102	0720 0040B	Retaining Ring - M4	
103	0720 0060B	Retaining Ring - M6	
104	1105 0230	Clamp	
105	1105 0199	Clamp	

8.ORIGINAL FEED 3 (A294)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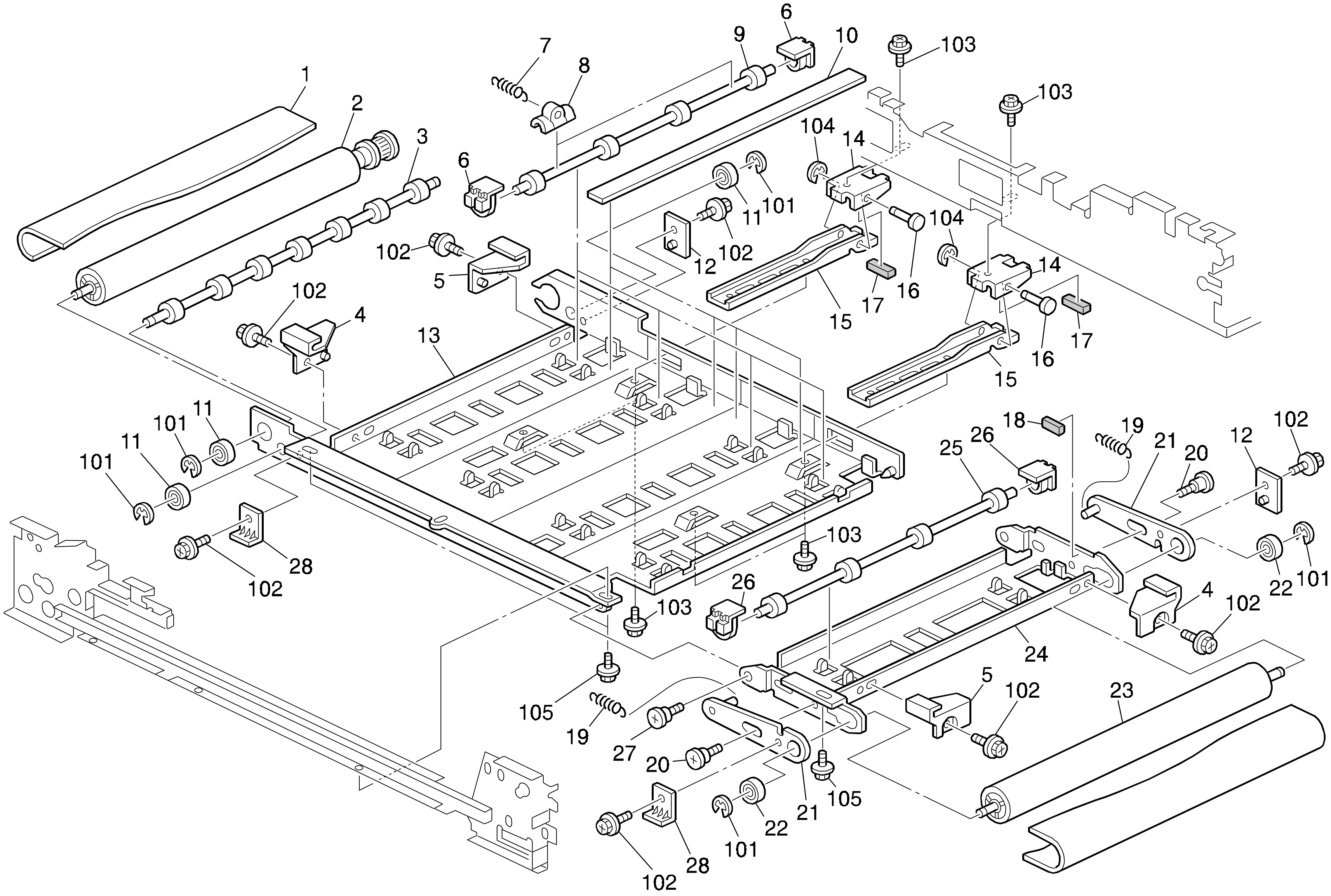
8.ORIGINAL FEED 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AA14 3074	Stepped Screw - M4x5	1
2	A806 1271	Pull Out Drive Roller	1
3	A806 1276	Transport Drive Roller	1
4	A806 5745	Paper Siz Sensor Harness	1
5	AW02 0104	Photointerruptor	1
6	AW02 0095	Photointerruptor	2
7	A806 1226	Paper Size Sensor Bracket	1
8	A806 1211	Middle Guide Plate	1
9	A806 1241	Lower Guide Plate	1
10	A806 1251	Transport Roller Arm	4
11	B301 4226	Spring	2
12	A806 1266	Driven Roller	2
13	5324 1658	Bushing- 4x8x4.5mm	2
14	A806 4221	Compression Spring	2
15	A806 1261	Middle Driven Roller	1
16	A806 1256	Middle Shaft - Roller Arm	1
17	A806 1257	Roller Arm Shaft	2
18	A806 1231	Paper Feed Base	1
19	B301 4413	Noise Absorbing Pad	1
20	A422 1063	Seal - 0.7x13x20	1
21	AW02 0075	Photointerruptor	1
22	A806 1221	Registration Sensor Bracket	1
23	AW01 0076	Photosensor - PS-117D1	1
24	A806 5740	Registration Sensor Harness	1
25	B301 1245	Entrance Guide	1
26	B301 5355	DC Relay Harness	1
27	A232 3562	Ball Bearing - 6x12x4mm	2
28	A232 3566	Ball Bearing - 8x16x5	2
29	G020 3897	Discharge Brush - Transport	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 3012B	Tapping Screw With Washer - M3x12	
102	0720 0040B	Retaining Ring - M4	
103	0451 3008B	Tapping Screw - M3x8	
104	1105 0328	Harness Clamp - ES-0505	
105	0451 3006B	Tapping Screw - M3x6	
106	1105 0199	Clamp	
107	0720 0030B	Retaining Ring - M3	
108	0450 3008B	Tapping Screw - M3x8	
109	1106 0193	Bushing - 7.9mm	

9.ORIGINAL TRANSPORT (A294)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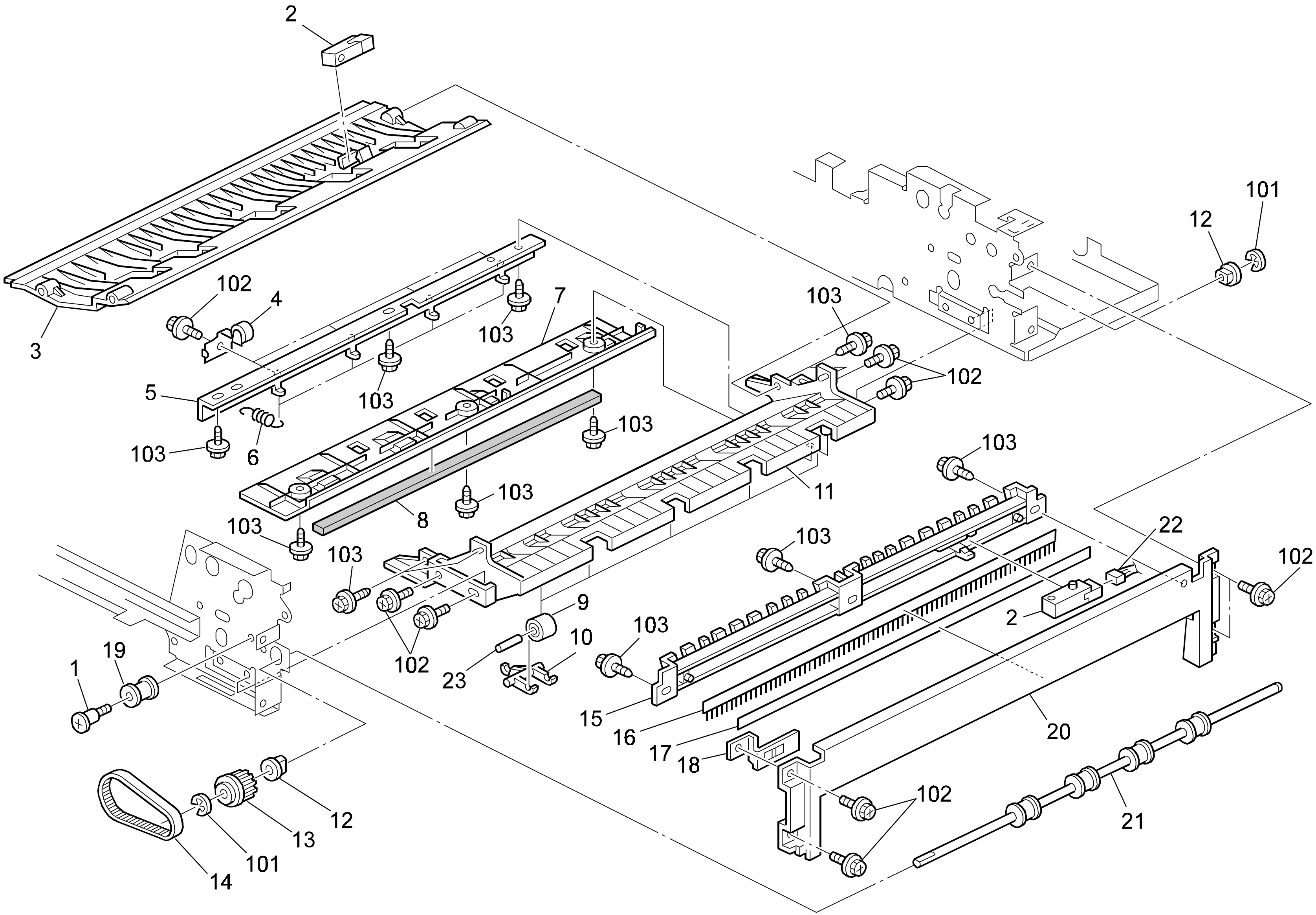
9.ORIGINAL TRANSPORT (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	**B301 1441**	**Transport Belt**	**1**
2	B301 1432	Belt Drive Roller	1
3	B301 1451	Belt Pressure Roller	1
4	B301 1443	Transport Belt Stopper - Front	2
5	B301 1444	Transport Belt Stopper - Rear	2
6	A610 2136	Bushing	8
7	A610 2133	Tension Spring	8
8	A610 2132	Pressure Bushing	8
9	B301 1481	Belt Pressure Roller	4
10	B301 4431	Vibration Absorbing Pad	4
11	A232 3565	Ball Bearing - 6x10x3mm	3
12	B301 1445	Rear Spacer	2
13	B301 1412	Transport Belt Plate	1
14	A680 1446	Transport Unit Arm	2
15	A548 1442	Transport Arm	2
16	A680 1443	Arm Shaft	2
17	A548 1448	Arm Cushion	2
18	AA16 1138	Cushion - 1.1	1
19	B301 1427	Spring	2
20	B301 1447	Stepped Screw	2
21	B301 1423	Tension Bracket	2
22	A232 3562	Ball Bearing - 6x12x4mm	2
23	B301 1436	Transport Belt Roller	1
24	B301 1422	Transport Stay	1
25	A610 2161	Belt Pressure Roller - 24	1
26	A610 2137	Pressure Roller Bushing	2
27	A498 3118	Stepped Screw - M4	1
28	B301 1449	Front Spacer	2

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0040B	Retaining Ring - M4	
102	0451 3008B	Tapping Screw - M3x8	
103	0451 4006B	Tapping Screw - 4x6	
104	0720 0030B	Retaining Ring - M3	
105	0451 3006B	Tapping Screw - M3x6	

10.ORIGINAL EXIT 1 (A294)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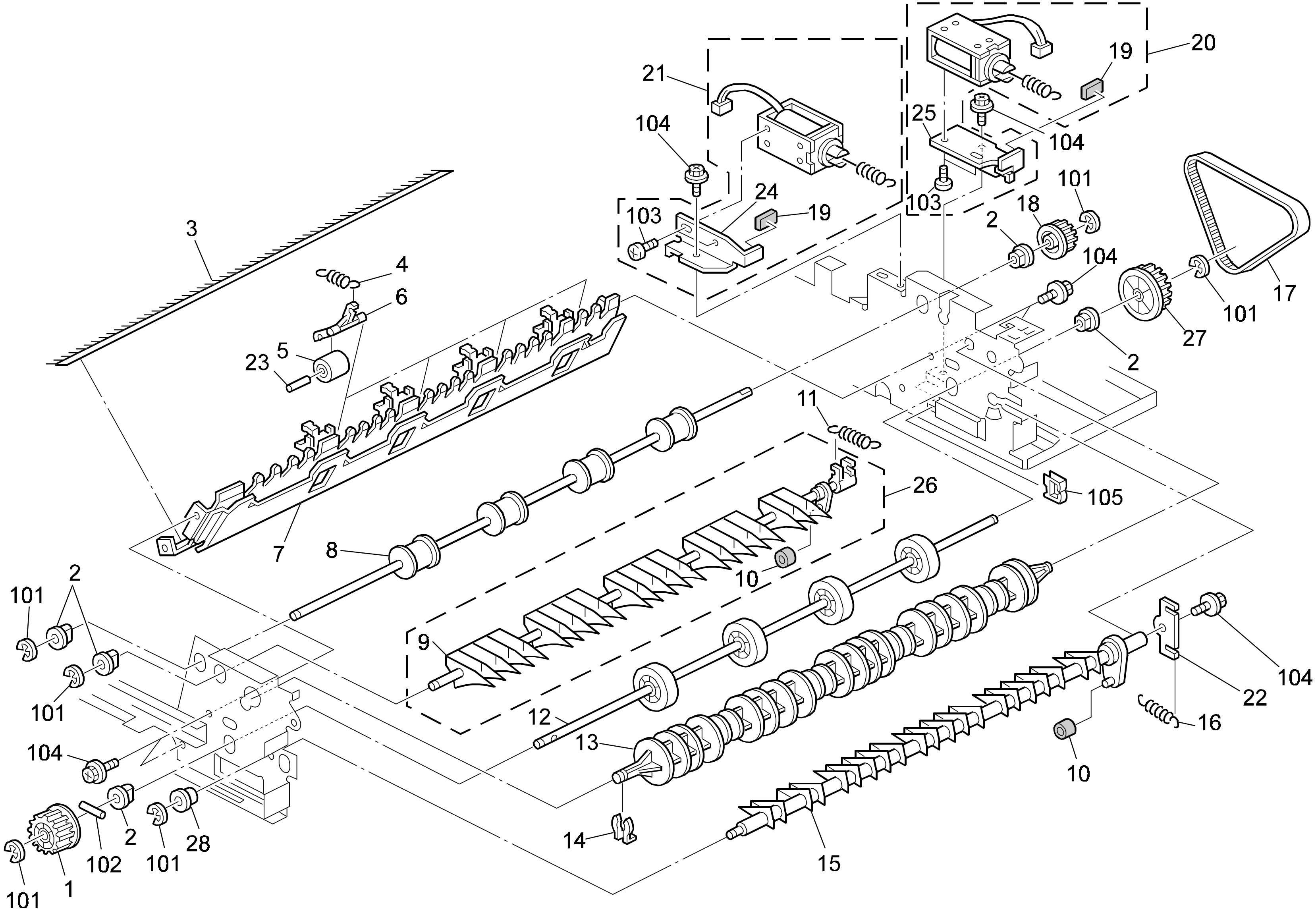
10.ORIGINAL EXIT 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AA14 3020	Stepped Screw - M4	1
2	AW01 0076	Photosensor - PS-117D1	2
3	B301 3161	Left Exit Guide	1
4	A806 3151	Driven Exit Roller	4
5	A806 3142	Guide Plate Bracket	1
6	B301 3135	Spring	4
7	A806 3171	Lower Exit Cover	1
8	B301 4413	Noise Absorbing Pad	1
9	B301 3184	Reverse Driven Roller	5
10	A548 1234	Driven Roller Arm	5
11	B301 3131	Lower Guide Plate	1
12	5053 0447	Bushing - 6mm	2
13	A806 3281	Timing Pulley - T14 S3M	1
14	AA04 3548	Timing Belt - B40S3M150	1
15	A806 3211	Right Exit Guide Plate	1
16	AA12 0032	Antistatic Brush	1
17	A806 3222	Seal	1
18	A806 3221	Exit Ground Plate	1
19	A351 3459	Idler	1
20	A806 1921	Right Cover	1
21	A806 3111	Drive Exit Roller	1
22	B301 5350	DC Harness	1
23	B301 3185	Driven Roller Shaft	5

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0040B	Retaining Ring - M4	
102	0451 3008B	Tapping Screw - M3x8	
103	0450 3008B	Tapping Screw - M3x8	

11.ORIGINAL EXIT 2 (A294)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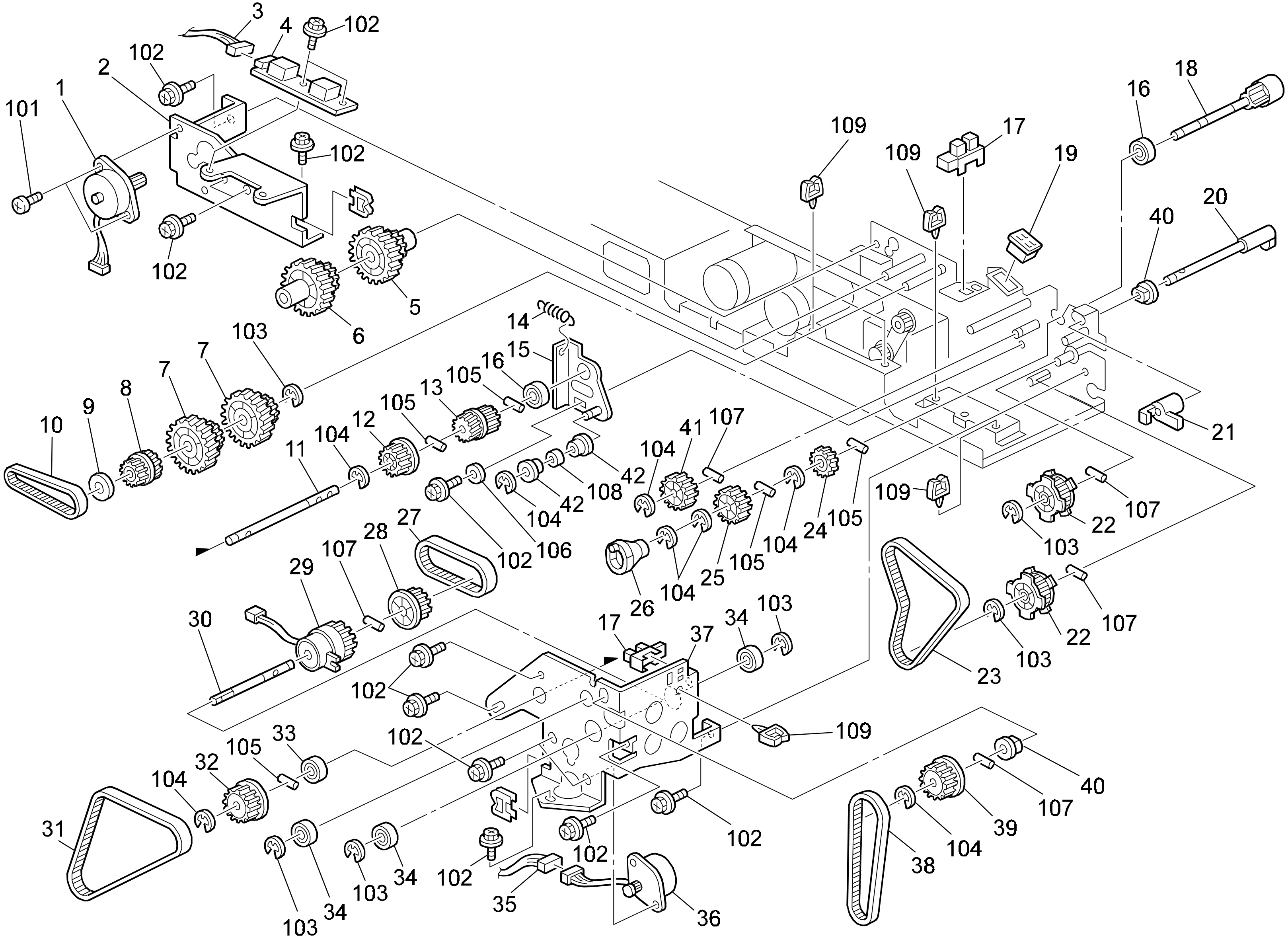
11.ORIGINAL EXIT 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A680 2321	Pulley - 30T	1
2	5053 0447	Bushing - 6mm	5
3	A548 1217	Antistatic Brush - Paper Exit	1
4	B301 3186	Spring	4
5	B301 3184	Reverse Driven Roller	4
6	A548 1234	Driven Roller Arm	4
7	B301 3181	Invertor Guide Plate	1
8	A548 1261	Exit Roller	1
9	A548 1321	Exchange Powl	1
10	A548 1317	Lever Cushion	2
11	A806 4232	Tension Spring	1
12	B301 3271	Reverse Drive Roller	1
13	A548 1231	Guide Roller	1
14	5215 2621	Snap Ring - M6	1
15	B301 3191	Exit Junction Gate	1
16	A806 4231	Spring	1
17	AA04 3547	Timing Belt - B40S3M213	1
18	A548 2137	Timing Pulley - 18Z	1
19	A469 3113	Rubber Seal - 1x6x10mm	2
20	A806 3311	Invertor Solenoid Assembly	1
21	A680 1384	Solenoid - Lower Inverter Gate	1
22	B301 3192	Lever - Exit Junction Gate	1
23	B301 3185	Driven Roller Shaft	4
24	A680 1385	Solenoid Bracket	1
25	A806 3312	Solenoid Bracket	1
26	A548 1320	Inverter Gate Plate	1
27	B301 3286	Pulley - 30Z	1
28	5324 1658	Bushing- 4x8x4.5mm	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0040B	Retaining Ring - M4	
102	0632 0120G	Parallel Pin - 2x12	
103	0353 0060B	Philips Pan Head Screw - M3x6	
104	0451 3008B	Tapping Screw - M3x8	
105	1105 0230	Clamp	

12.DF DRIVE SECTION 1 (A294)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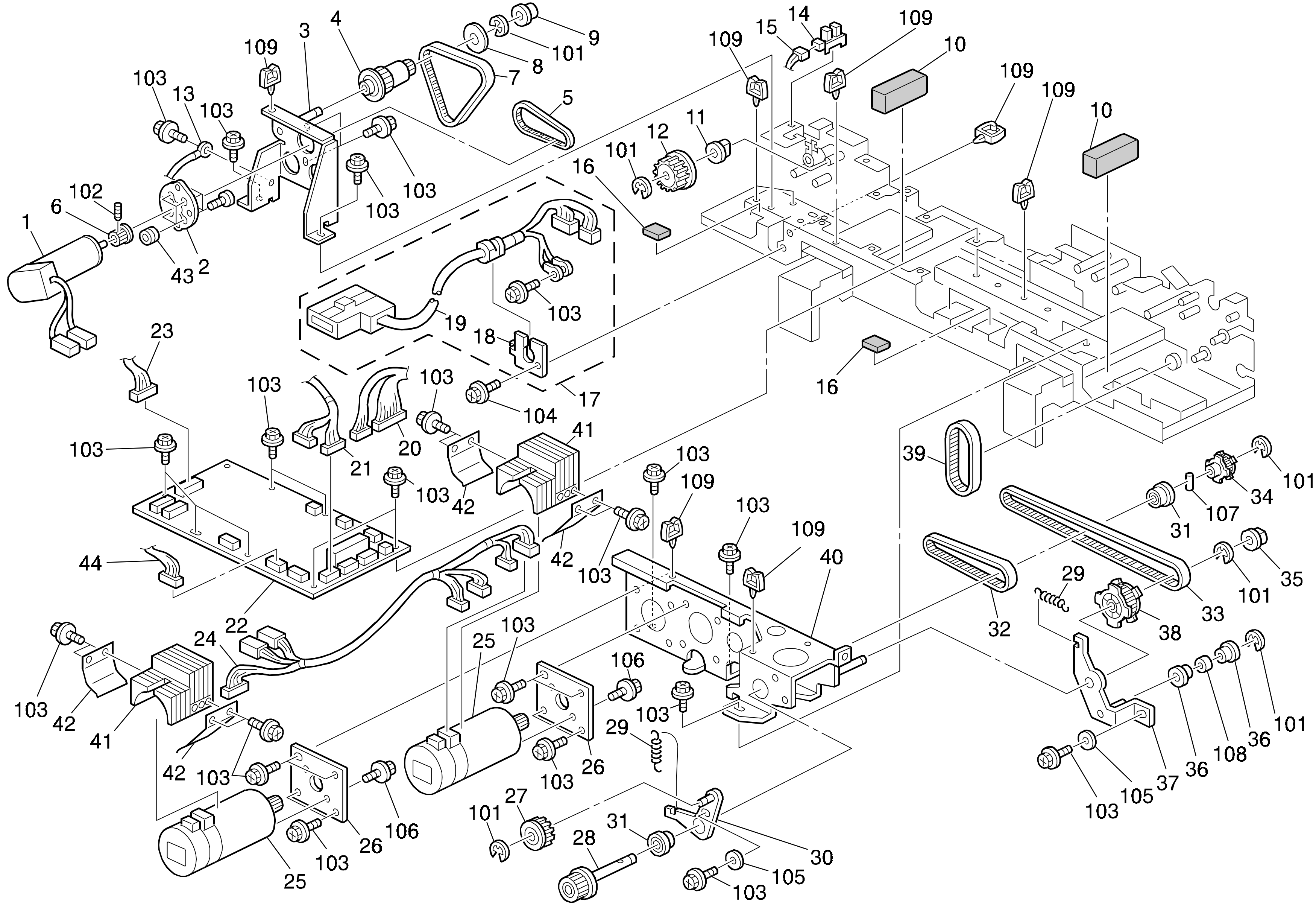
12.DF DRIVE SECTION 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A806 2911	Stepper Motor Ass'y	1
2	B301 2362	Motor Bracket	1
3	A806 5705	Display Harness	1
4	5936 5231	Indicator Board	1
5	A806 2285	Gear - Z20/Z47	1
6	A806 2287	Gear - Z20/Z47	1
7	A806 2283	Gear - Z20/Z47	2
8	A806 2161	Timing Pulley - T30/Z20 S2M/M0.8	1
9	AA13 2152	Spacer - 8x20x1	1
10	A806 4117	Timing Belt - B40S2M158	1
11	B301 2122	Shaft	1
12	B301 2213	Pulley - 20Z	1
13	B301 2211	Pulley - 20/19Z	1
14	AA06 0590	Pressure Spring	1
15	B301 2251	Tension Bracket	1
16	A232 3562	Ball Bearing - 6x12x4mm	2
17	AW02 0075	Photointerruptor	2
18	B301 2242	Shaft	1
19	A680 1181	Magnetic Catch	1
20	B301 2422	Cam - Pick-up Roller	1
21	A680 2262	Feeler - Pick-up Roller Cam	1
22	B301 2261	Pulley - 36Z	2
23	AA04 3536	Timing Belt - B60S3M279	1
24	B301 2244	Gear - 23Z	1
25	B301 2243	Gear - 29Z	1
26	A806 2244	Separation Shaft Stopper	1
27	AA04 3535	Timing Belt - B60S3M195	1
28	B301 2273	Pulley - 32Z	1
29	AX20 0173	Magnetic Clutch	1
30	B301 2271	Shaft	1
31	AA04 3534	Timing Belt - B60S3M216	1
32	B301 2123	Pulley - 24Z	1
33	A859 2230	Ball Bearing - 6x13x5	1
34	A232 3566	Ball Bearing - 8x16x5	3
35	A806 5715	Pick Up Motor Harness	1
36	AX04 0096	Stepping Motor - DC 18W	1
37	B301 2333	Side Plate	1
38	AA04 3537	Timing Belt - B40S2M206	1
39	B301 2141	Pulley - 39Z	1
40	5053 0447	Bushing - 6mm	2
41	B301 2221	Gear - 31Z	1
42	A232 3565	Ball Bearing - 6x10x3mm	2
101	0353 0050B	Philips Truss Head Screw - M3x5	
102	0451 3008B	Tapping Screw - M3x8	
103	0720 0060B	Retaining Ring - M6	
104	0720 0040B	Retaining Ring - M4	
105	0632 0120G	Parallel Pin - 2x12	
106	0701 0030B	Flat Washer - M3	
107	0632 0160G	Parallel Pin - M2x16	
108	0805 3507	Bushing - 6mm	
109	1105 0230	Clamp	

13.DF DRIVE SECTION 2 (A294)



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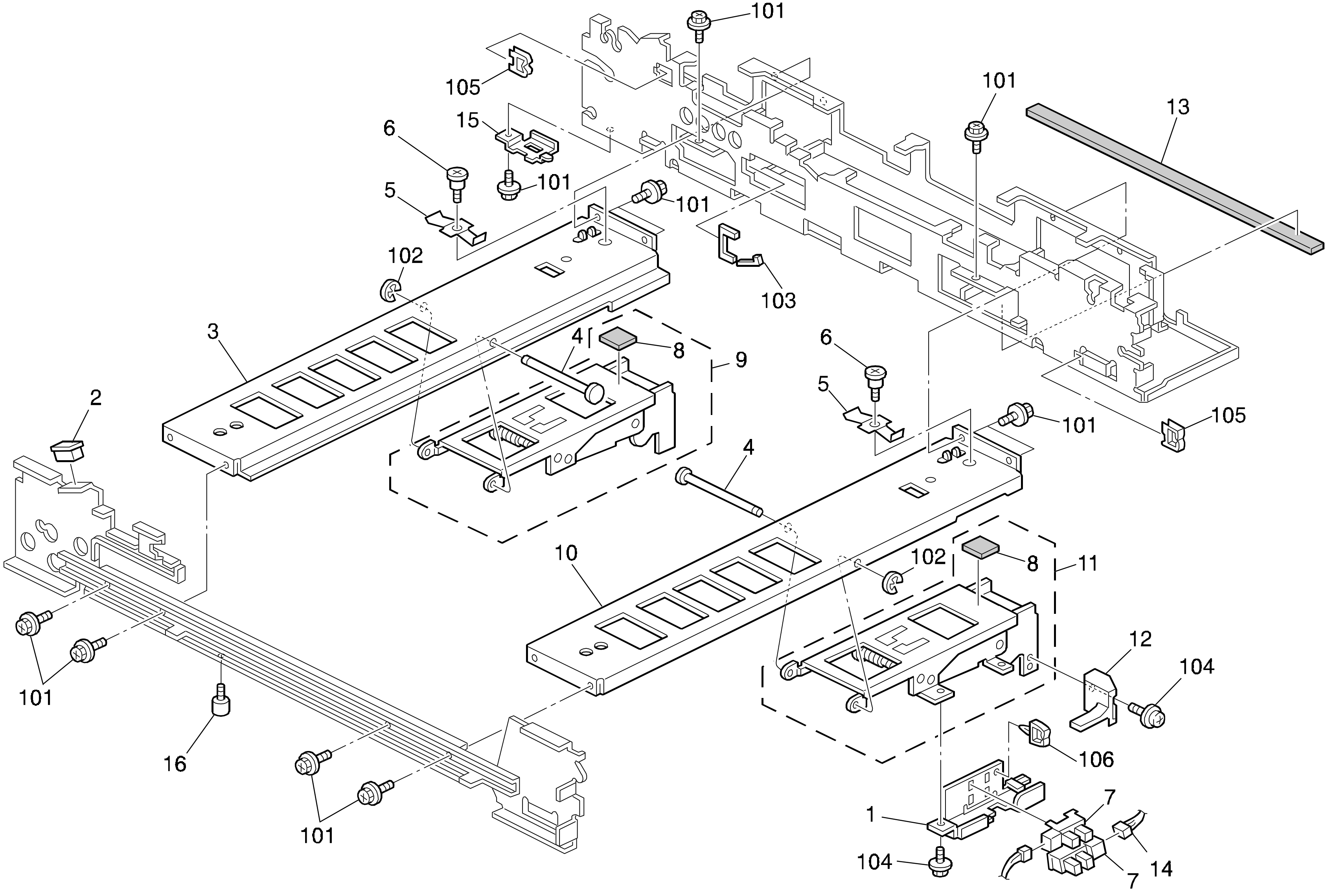
13.DF DRIVE SECTION 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AX06 0121	DC Motor - 27W	1
2	B301 3245	Exit Motor Guide Plate	1
3	B301 3241	Exit Motor Bracket	1
4	A680 2311	Pulley - 18T/32T	1
5	AA04 3539	Timing Belt - B40S2M104	1
6	A610 3532	Timing Pulley - 18Z	1
7	AA04 3547	Timing Belt - B40S3M213	1
8	A300 3812	Spacer - 6x22x1.5	1
9	5936 2321	Rubber Bushing - Vibration Damper	1
10	B301 4414	Rubber Cushion	3
11	5053 0447	Bushing - 6mm	1
12	A548 2137	Timing Pulley - 18Z	1
13	B301 5375	Grounding Wire	1
14	AW02 0075	Photointerruptor	1
15	B301 5360	DC Relay Harness	1
16	B301 1141	Rubber Cushion	2
17	B301 5340	DF Harness	1
18	A680 1171	Harness Holder	1
19	A806 5773	SADF Harness	1
20	B301 5300	DC Harness	1
21	B301 5330	DC Harness	1
22	B301 5500	ADF Main Control Board	1
23	B301 5350	DC Harness	1
24	B301 5370	DC Harness	1
25	B301 5600	DC Motor - 54W	2
26	B301 2172	Cushion	2
27	AB03 0354	Pulley - 20T	1
28	B301 2113	Pulley - 19Z	1
29	AA06 0590	Pressure Spring	2
30	B301 2322	Holder Bracket	1
31	B301 2610	Bearing - 6x15x5	2
32	AA04 3533	Timing Belt - B0S2M256	1
33	AA04 3546	Timing Belt - B60S2M474	1
34	B301 2111	Pulley - 30Z	1
35	5936 2321	Rubber Bushing - Vibration Damper	1

Index No.	Part No.	Description	Q'ty Per Assembly
36	A232 3565	Ball Bearing - 6x10x3mm	2
37	B301 2316	Tension Bracket	1
38	B301 2231	Pulley - 58/20Z	1
39	AA04 3538	Timing Belt - B60S3M174	1
40	B301 2311	Motor Bracket	1
41	B301 2319	Heat Sink - DC Motor	2
42	B301 2320	Heat Sink Holder	4
43	B301 3246	Motor Bushing - 4x9x5.2	4
44	A806 5755	On Off Detector Harness	1
101	0720 0040B	Retaining Ring - M4	
102	0574 0050E	Hexagon Headless Set Screw - M4x5	
103	0451 3008B	Tapping Screw - M3x8	
104	0451 4008B	Philips Tapping Screw - M4x8	
105	0701 0030B	Flat Washer - M3	
106	0451 4006B	Tapping Screw - 4x6	
107	0632 0120G	Parallel Pin - 2x12	
108	0805 3507	Bushing - 6mm	
109	1105 0230	Clamp	

14.DF FRAME SECTION (A294)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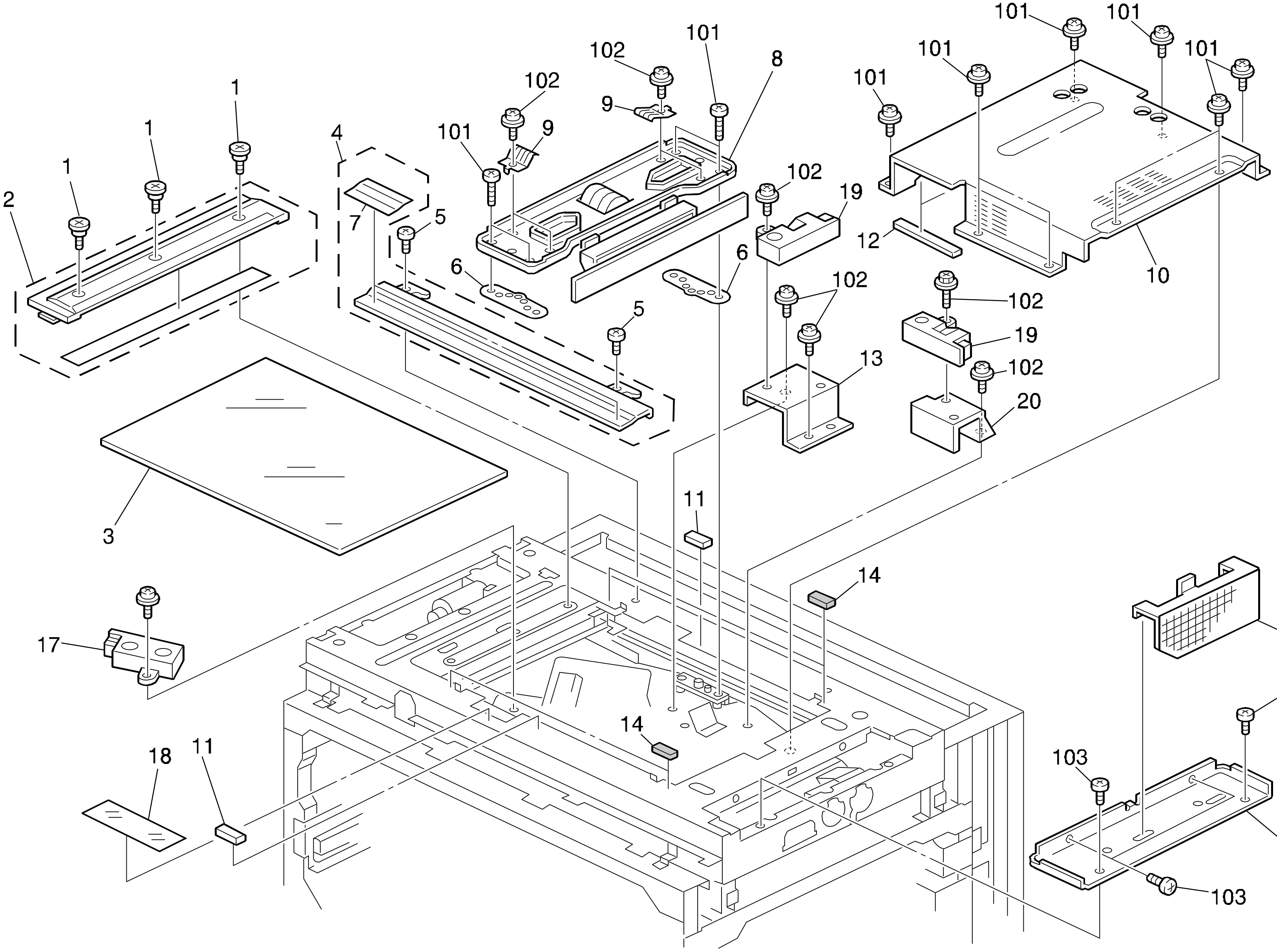
14.DF FRAME SECTION (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	B301 1542	Sensor Bracket	1
2	A680 1181	Magnetic Catch	1
3	B301 1131	Rear Side Plate	1
4	A806 1135	Contact Point Shaft	2
5	A548 1135	Spring Plate	2
6	AA14 3039	Spring Holder	2
7	AW02 0075	Photointerruptor	2
8	A351 4281	Anti-vibration Cushion	2
9	B301 1510	Left Hinge	1
10	B301 1133	Right Stay	1
11	B301 1520	Right Hinge	1
12	A548 1531	Safety Switch Feeler	1
13	B301 4412	Acoustic Material	1
14	A806 5755	On Off Detector Harness	1
15	B301 1137	Pulley Cover	1
16	5410 1291	Pin	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0450 3008B	Tapping Screw - M3x8	
102	0720 0030B	Retaining Ring - M3	
103	1105 0334	Edge - 17	
104	0451 4006B	Tapping Screw - 4x6	
105	1105 0328	Harness Clamp - ES-0505	
106	1105 0230	Clamp	

15.OPTICS SECTION 1 (A294)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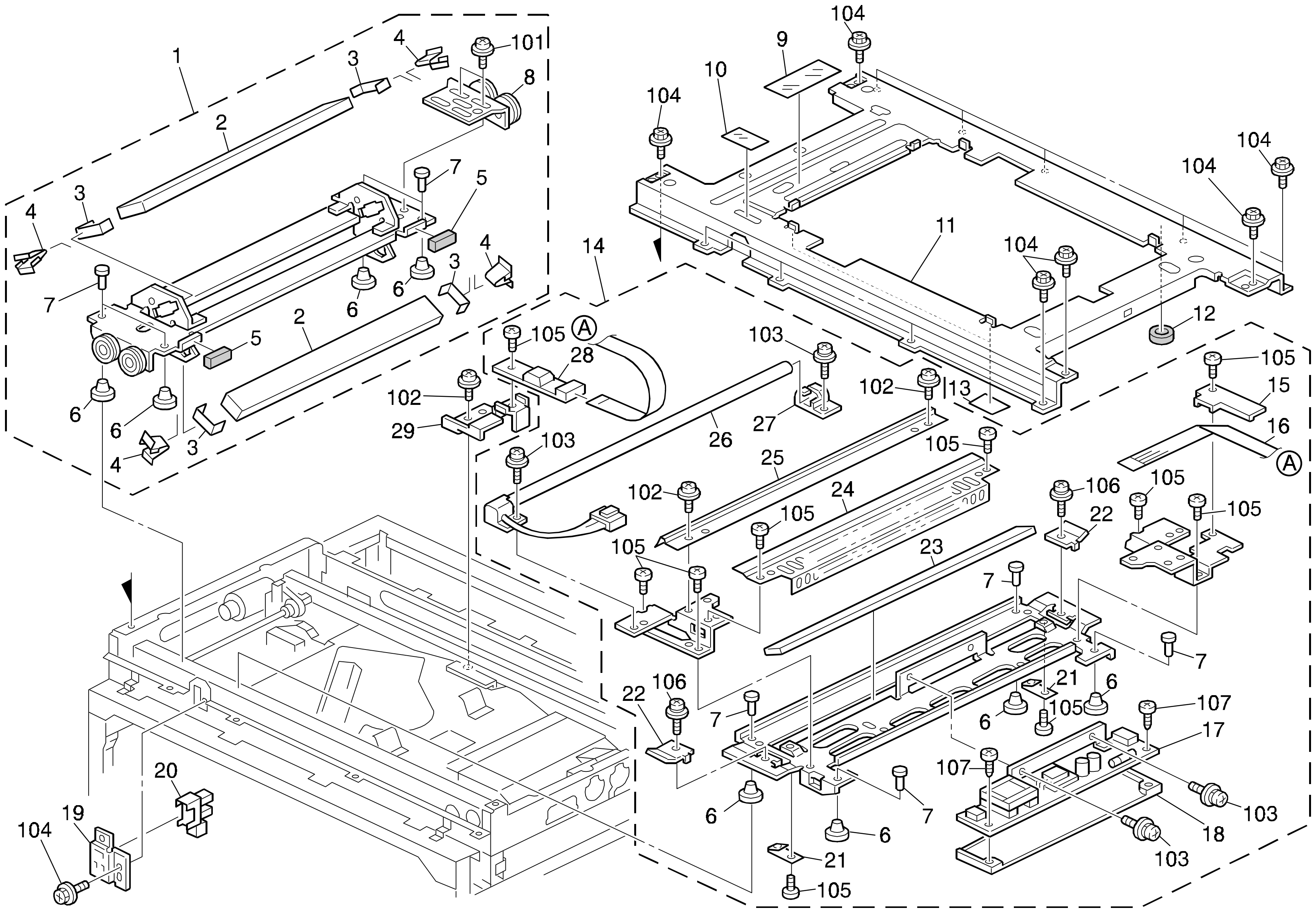
15.OPTICS SECTION 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	5206 2684	Shoulder Screw - M3	3
2	A294 1791	Left Scale	1
3	AC01 2065	Exposure Glass - A3 T-3.2	1
4	A294 1795	Right Scale	1
5	AA14 3417	Shoulder Screw - M4x4	2
6	A294 1782	Spacer - Lens Stay	2
7	A294 1746	Bracket - Wire Tension	2
8	A294 1771	Scanner Lens Unit	1
9	A294 1838	Ground Plate - Lens Stay	4
10	A294 1779	Cover - Lens Unit	1
11	A176 1737	Exposure Glass Cushion	2
12	A294 1778	Lens Cover Gasket - D06560	2
13	A294 1822	Bracket - Original Sensor	1
14	AA16 1138	Cushion - 1.1	4
15	A294 1830	Dust Filter	1
16	A294 1799	Right Stay - Optical Housing	1
17	AW01 0034	Original Width Sensor	1
18	A294 1788	Sheet - Upper Frame	1
19	AW01 0078	Photosensor H=50	2
20	A294 1825	Holder - Original Sensor	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0314 0080B	Philips Pan Head Screw - M4x8	
102	0951 3006B	Philips Screw With Flat Washer - M3x6	
103	0450 3010B	Tapping Screw - M3x10	

16.OPTICS SECTION 2 (A294)



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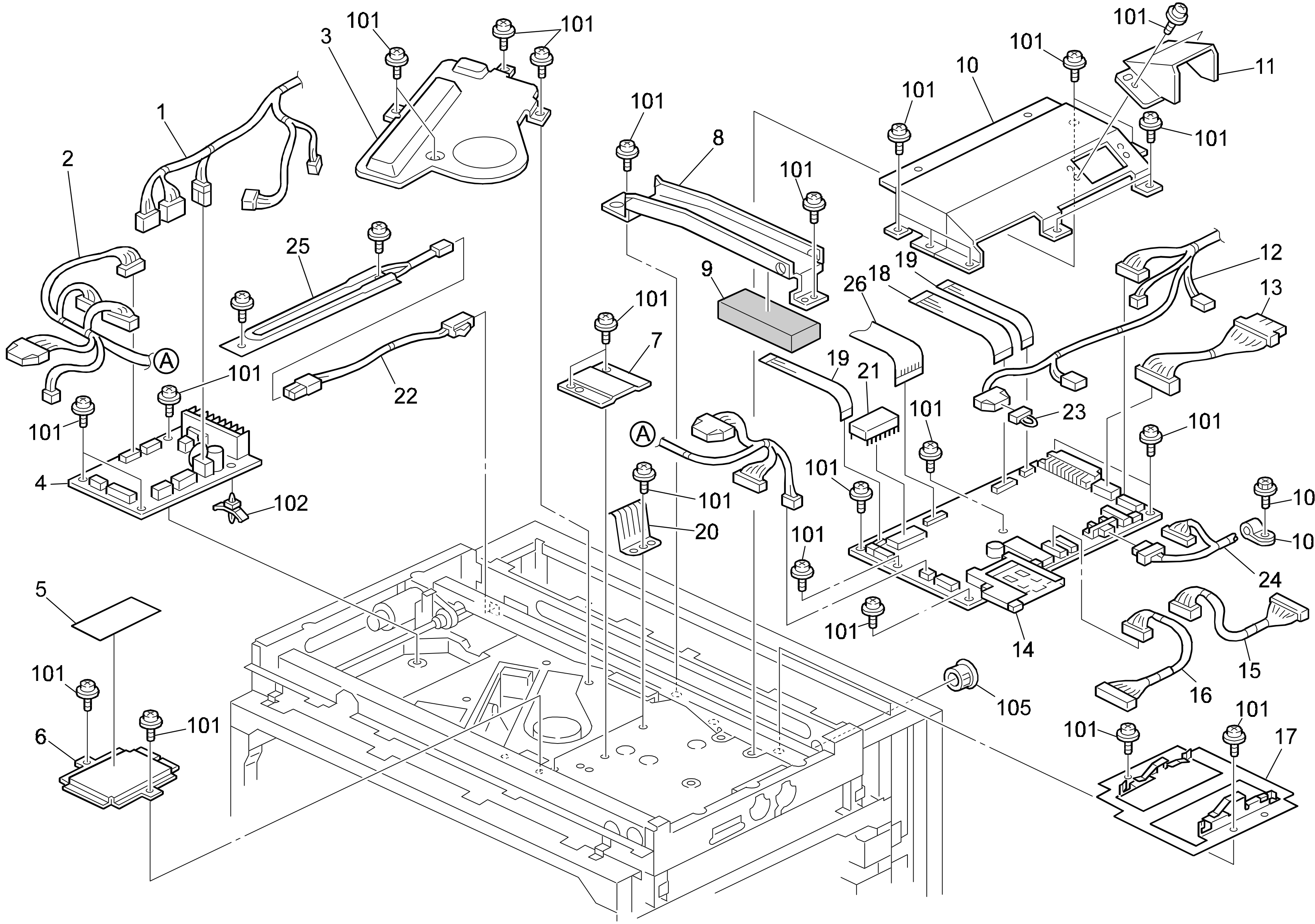
16.OPTICS SECTION 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 1732	2nd Scanner Ass'y	1
2	A294 1742	2nd Mirror	2
3	A294 1744	Guard - 2nd Mirror	4
4	G404 2810	Spring Plate - Mirror - Second	4
5	A294 1743	Cushion - 5x20x4	2
6	A069 1883	Shoe - Scanner	8
7	A096 1873	Scanner Shoe Pin	8
8	A294 1739	Scanner Drive Bracket	1
9	A294 1789	Sheet - Upper Frame Big	1
10	A294 1788	Sheet - Upper Frame	1
11	A294 1785	Frame - Optical Housing	1
12	A294 1790	Cushion - Scanner	1
13	A110 1193	Seal - 01.x15x24	2
14	A294 1701	1st Scanner Ass'y	1
15	A294 1710	Holder - 1st Scanner Harness	1
16	A294 5500	Harness - 1st Scanner	1
17	AZ50 0054	Inverter - Xenon Lamp	1
18	A294 1708	Invertor Insulator - 1	1
19	A229 1825	Home Position Sensor Bracket	1
20	AW02 0056	Photointerruptor - EE-SX4235A-P1	1
21	AC03 5022	Rear Mirror Clamp - 1st Mirror	2
22	A294 1709	Wire Clamp	2
23	A294 1706	1st Mirror	1
24	A294 1705	Cover - 1st Scanner	1
25	A294 1707	Reflector	1
26	AX50 0071	Xenon Lamp - 7000 OLX	1
27	A294 1712	Rear Holder - Lamp	1
28	A294 5501	Board - 1st Scanner Harness	1
29	A294 1832	Bracket Harness	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0951 3004B	Philps Screw With Flat Washer - M3x4	
102	0951 3006B	Philips Screw With Flat Washer - M3x6	
103	0954 3008B	Philips Screw - M3x8	
104	0451 4006B	Tapping Screw - 4x6	
105	0453 3006B	Tapping Screw - M3x6	
106	0954 4008B	Philips Screw - M4x8	
107	0452 3006W	Tapping Screw - 3x6	

17.OPTICS SECTION 3 (A294)



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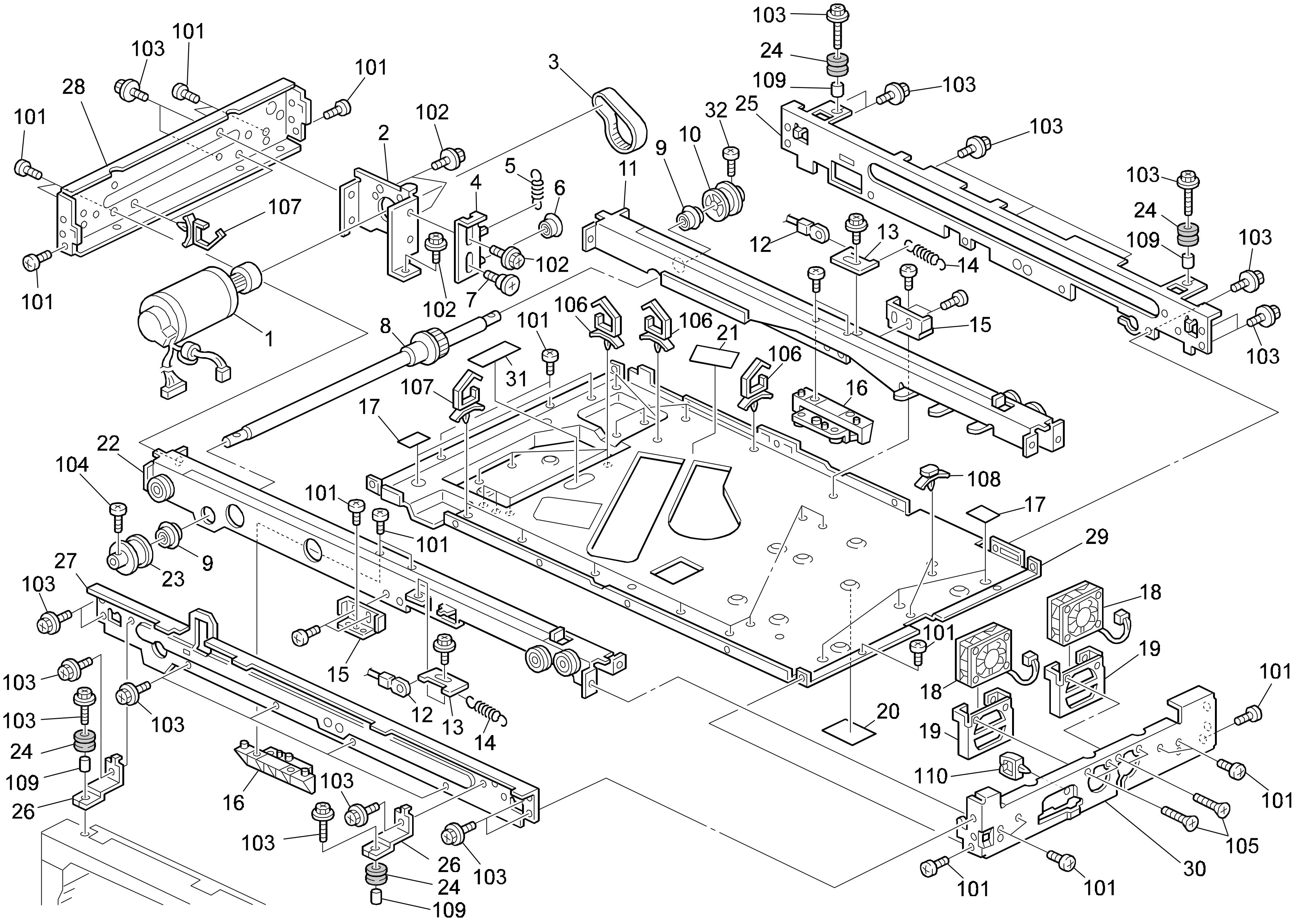
17.OPTICS SECTION 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 5093	Harness - MCU LDB	1
2	A294 5094	Harness - MCU Board	1
3	A294 1811	Cover - LD Unit	1
4	A294 5053	MCU Board	1
5	G029 1982	Decal - LD	1
6	A294 1817	Cover - Sync Detector	1
7	A294 1840	Cable Holder Plate	1
8	A294 1833	Guide Harnes	1
9	A294 1835	Holder - SICU Harness	1
10	A294 1827	Cover - SICU Board	1
11	A294 1828	Duct Fan	1
12	A294 5098	Harness - SICU Connect	1
13	A294 5092	Harness - SICU Board	1
14	A294 5600	SICU Board - 240V USA	1
14	A294 5650	SICU Board - 230V	1
15	A294 5177	2nd HDD Harness	1
16	A294 5176	Harness - Hard Disk Drive	1
17	A294 1834	Guide Board - PCB	1
18	A294 5090	Harness - FFC40	1
19	A294 5091	Harness - FFC15	2
20	A294 1839	Ground Plate - Under Lens Stay	2
21	A294 9099	NVRAM - Minus Counter	1
22	A294 5096	Harness - Heater Connect	1
23	A096 5464	Key Counter Connector	1
24	A294 5490	Cable - Operation Board SICU	1
25	AX40 0106	Anticondensation Heater - 230V 15W (Option)	1
26	A294 5222	Harness - Optical Unit FFC	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0951 3006B	Philips Screw With Flat Washer - M3x6	
102	1105 0192	Locking Support	
103	0451 4008B	Philips Tapping Screw - M4x8	
104	1105 0295	Metal Cable Clamp	
105	1106 0200	Bushing - 19.44mm	

18.OPTICS SECTION 4 (A294)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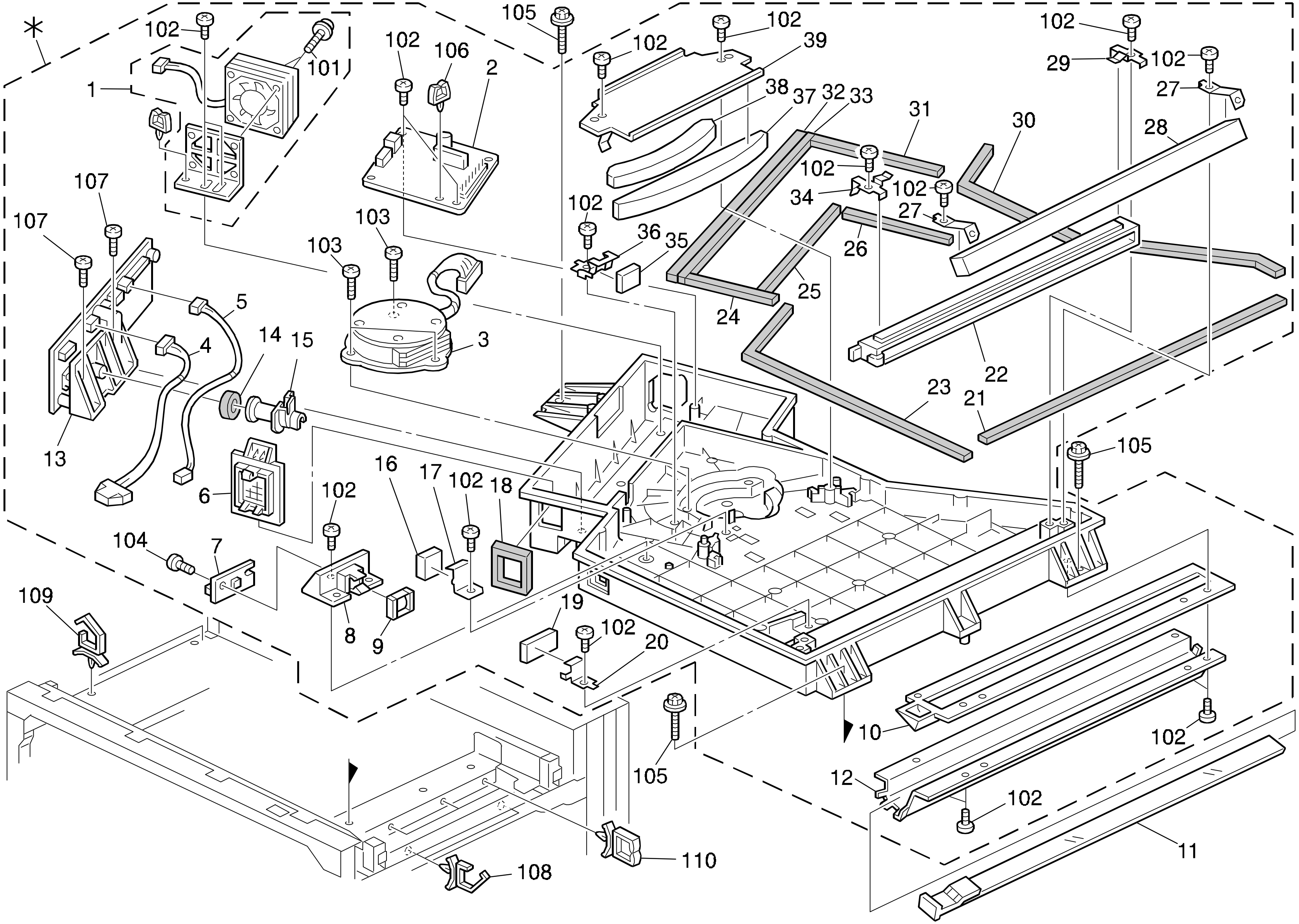
18.OPTICS SECTION 4 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 1760	Scanner Motor - DC38V 50W	1
2	A294 1748	Scanner Motor Bracket	1
3	A294 1747	Timing Belt - Scanner	1
4	A294 1753	Bracket - Belt Tension	1
5	A294 1756	Spring - Scanner Motor	1
6	AB03 0529	Belt Tension Pulley	1
7	C201 5125	Stepped Screw - M6	1
8	A294 1749	Shaft - Scanner Drive	1
9	A193 1829	Ball Bearing - M8	2
10	A294 1758	Pulley - Rear Drive	1
11	A294 1695	Rear Scanner Rail Ass'y	1
12	A294 1759	Wire - Scanner Drive	2
13	A294 1746	Bracket - Wire Tension	2
14	AA06 0221	Gripper Solenoid Spring	2
15	A294 1687	Bracket - Scanner Rail	2
16	A294 1781	Holder - Lens Unit	2
17	AA15 0332	Seal - 0.19x18x22	5
18	AX64 0083	Cooling Fan	2
19	A229 1831	Fan Bracket	2
20	AA15 0012	Shielding Mylar - 30x30	1
21	G029 1982	Decal - LD	1
22	A294 1694	Front Scanner Rail Ass'y	1
23	A294 1757	Pulley - Front Drive	1
24	AA16 1104	Cushion - Motor	4
25	A294 1670	Rear Frame	1
26	A294 1673	Front Stay	2
27	A294 1668	Front Frame	1
28	A294 1665	Left Frame	1
29	A294 1661	Base Frame	1
30	A294 1666	Right Frame	1
31	A294 1667	Sheet - Optical Housing	1
32	A294 1765	Sems Screw - M3x8	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0453 4006B	Tapping Screw - 4x6	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	0451 4006B	Tapping Screw - 4x6	
104	0951 3006B	Philips Screw With Flat Washer - M3x6	
105	0324 0250B	Screw - M4x25	
106	1105 0291	Harness Clamp - LWS-3S	
107	1105 0310	Harness Clamp - LWS-1S	
108	1105 0367	Spacer	
109	0707 4050B	Bushing - 4 X5	
110	1105 0199	Clamp	

19.LASER UNIT (A294)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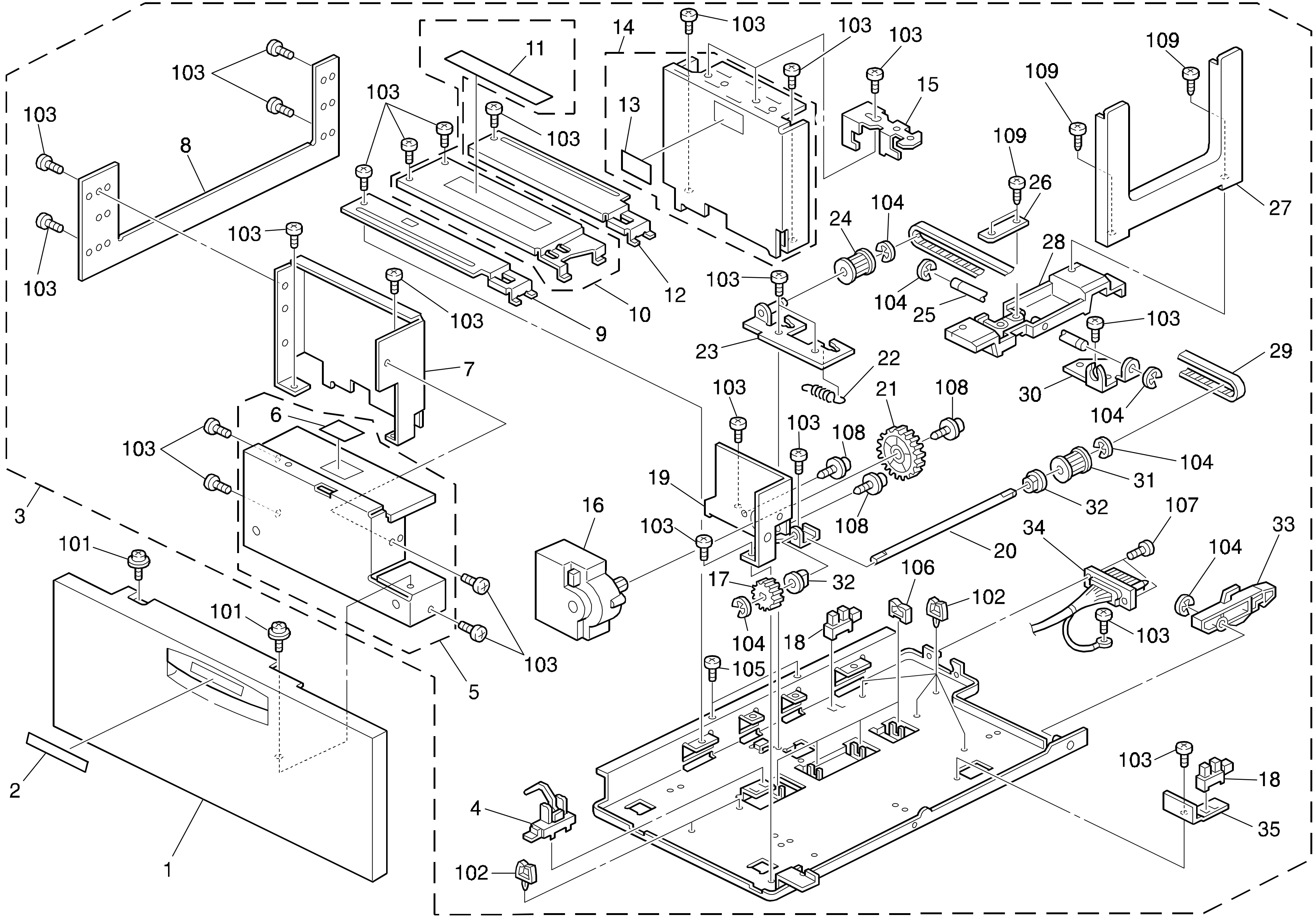
19.LASER UNIT (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 1851	Optical Housing Ass'y	1
1	A294 1965	Fan Motor - DC12V 2.1W	1
2	A294 5245	Board - Polygon Motor Drive	1
3	AX06 0185	Polygon Mirror Motor Ass'y	1
4	A294 5225	Harness - Interlock Switch	1
5	A294 5223	Harness - Sync Detector	1
6	A294 1979	Filter - Laser Diode Unit	1
7	A232 5310	Laser Sync. Detector	1
8	A294 1942	Holder - Sync Detector Board	1
9	G029 1975	Cylindrical Lens	1
10	A294 1945	Holder - Shield Glass	1
11	AC01 5030	Toner Shield Glass - 366x15	1
12	A294 1949	Bracket - Shield Glass	1
13	A294 1910	LD Unit	1
14	A294 1962	Spacer Seal	1
15	A294 1961	Spacer - Laser Diode Unit	1
16	AC03 0124	2nd Mirror	1
17	AC03 5054	2nd Mirror Plate	1
18	A294 1963	Imaging Unit Shield Duct	1
19	AC03 0078	Sync Detector Mirror	1
20	AC03 5055	Sync Detector Mirror Plate	1
21	A294 1951	Shield 1	1
22	A294 2072	Mirror Duct	1
23	A294 1957	Shield 7	1
24	A294 1956	Shield 6	1
25	A294 1959	Shield 9	1
26	A294 1958	Shield 8	1
27	AC03 5052	1st Mirror Plate	1
28	AC03 0069	1st Mirror	1
29	A257 2077	Rear Lens Plate	1
30	A294 1953	Shield 3	1
31	A294 1954	Shield 4	1
32	A294 1964	Optical Housing Gasket	1
33	A294 1955	Shield 5	1
34	A257 2076	Front Lens Plate	1

Index No.	Part No.	Description	Q'ty Per Assembly
35	AC02 4004	Cylindrical Lens	1
36	A257 2097	Cylindrical Lens Plate	1
37	AC02 2013	F-theta Lens 2	1
38	AC02 2012	F-theta Lens 1	1
39	A257 2102	F-theta Lens Plate	1
101	0951 3020B	Philips Screw With Flat Washer -3x8	
102	0353 0060B	Philips Pan Head Screw - M3x6	
103	0354 0100B	Screw - M4X10	
104	0452 3006B	Tapping Screw - M3x6	
105	0451 4010B	Tapping Screw - 4x10	
106	1105 0359	Clamp	
107	0313 0080B	Philips Pan Head Screw - M3x8	
108	1105 0310	Harness Clamp - LWS-1S	
109	1105 0292	Wire Saddle	
110	1105 0198	Harness Clamp - WS-3 NSV-0	

20.TANDEM TRAY 1 (A294)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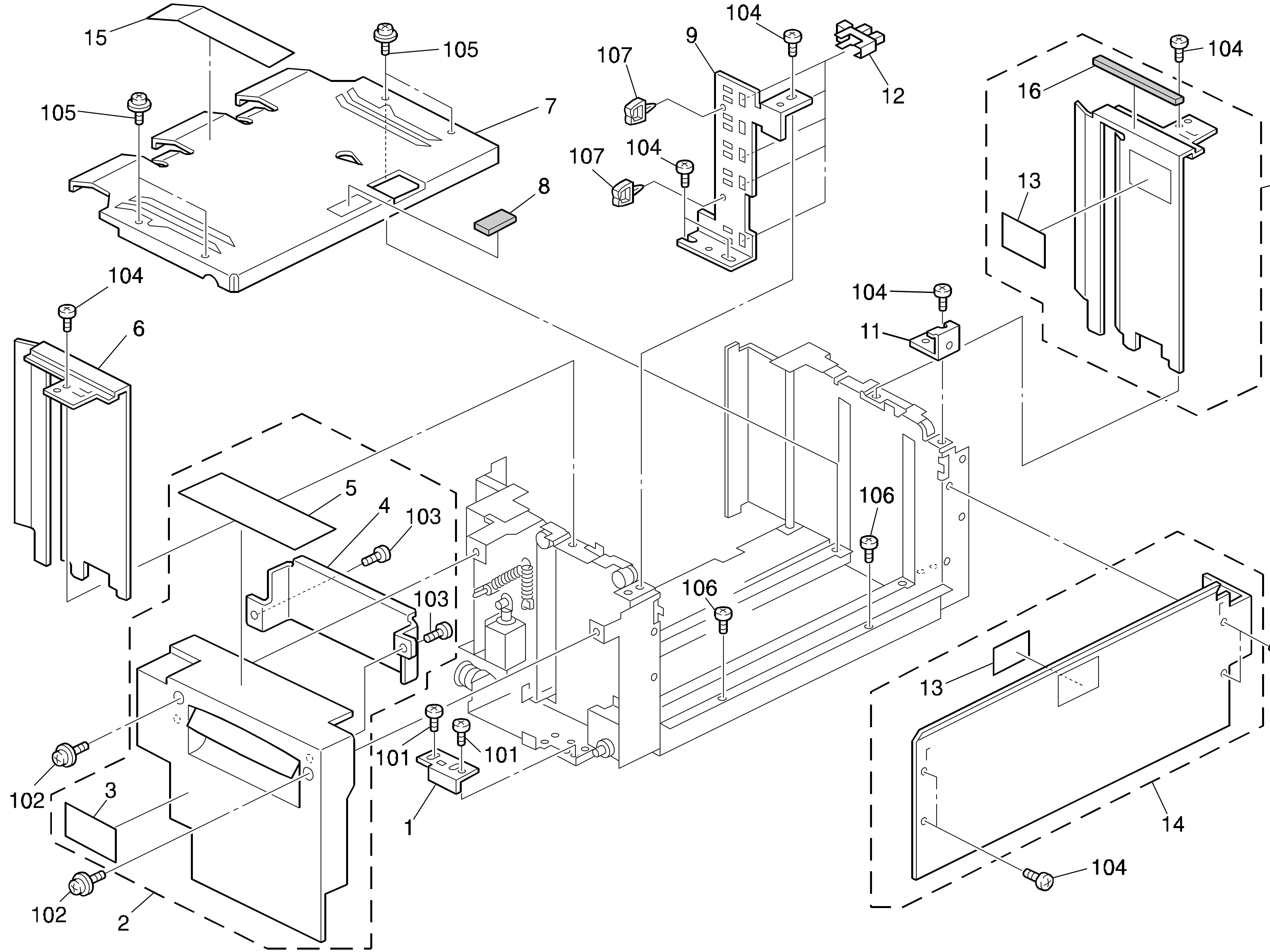
20.TANDEM TRAY 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 6804	Tandem LCT Cover	1
2	AA00 2237	Decal - Paper Tray No1	1
3	A294 6611	Left Tandem Tray Ass'y - LT	1
3	A294 6609	Left Tandem Tray Ass'y - A4	1
4	AW02 0008	Photointerruptor	1
5	A294 6632	Cover Bracket	1
6	AA00 2244	Decal - Paper Set - Left	1
7	A294 6643	Left Front Fence	1
8	A294 6645	Left Side Plate	1
9	A248 6640	Tray Bottom Plate - Left Front	1
10	A248 6639	Tray Bottom Plate - Left Middle	1
11	A096 6678	Decal - Left Paper Set	1
12	A248 6642	Tray Bottom Plate - Left Rear	1
13	AA00 2010	Decal - Paper Level	1
14	A294 6630	Left Rear Fence	1
15	A294 6650	Stopper - Interlock Switch	1
16	AX04 0107	DC Motor - 19.2W	1
17	AB01 3798	Gear - Z18	1
18	AW02 0056	Photointerruptor - EE-SX4235A-P1	2
19	A248 6636	DC Motor Bracket	1
20	AA14 0686	Shaft - Timing Pulley	1
21	AB01 9475	Gear - 48T	1
22	AA06 0759	Tension Spring	1
23	A248 6616	Bracket - Driven Pulley	1
24	AB03 3085	Timing Pulley - 15T Driven	1
25	AA14 0685	Shaft - Back Fence Slider	1
26	A248 6627	Timing Belt Cover	1
27	A294 6624	Left End Fence	1
28	A248 6623	Slider - Left Back Fence	1
29	AA04 3271	Timing Belt - S3M 196T	1
30	A248 6619	Bracket - Drive Pulley	1
31	AB03 3084	Timing Pulley - 15T - Drive	1
32	5053 0447	Bushing - 6mm	2
33	A248 6615	Coupling Lever - Left	1
34	A247 5428	DC Harness - Left	1

Index No.	Part No.	Description	Q'ty Per Assembly
35	A248 6620	Bracket - Photointerruptor	1
101	0951 4008B	Philips Screw With Washer - M4x8	
102	1105 0230	Clamp	
103	0434 0060B	Pan Head Self-tapping Screw - M4x6	
104	0720 0040B	Retaining Ring - M4	
105	0344 0050F	Philips Truss Head Screw - M4X5	
106	1105 0328	Harness Clamp - ES-0505	
107	0313 0080B	Philips Pan Head Screw - M3x8	
108	0965 3008W	Tapping Screw With Flat Washer - M3x8	
109	0452 4010B	Tapping Bind Screw - M4x10	

21.TANDEM TRAY 2 (A294)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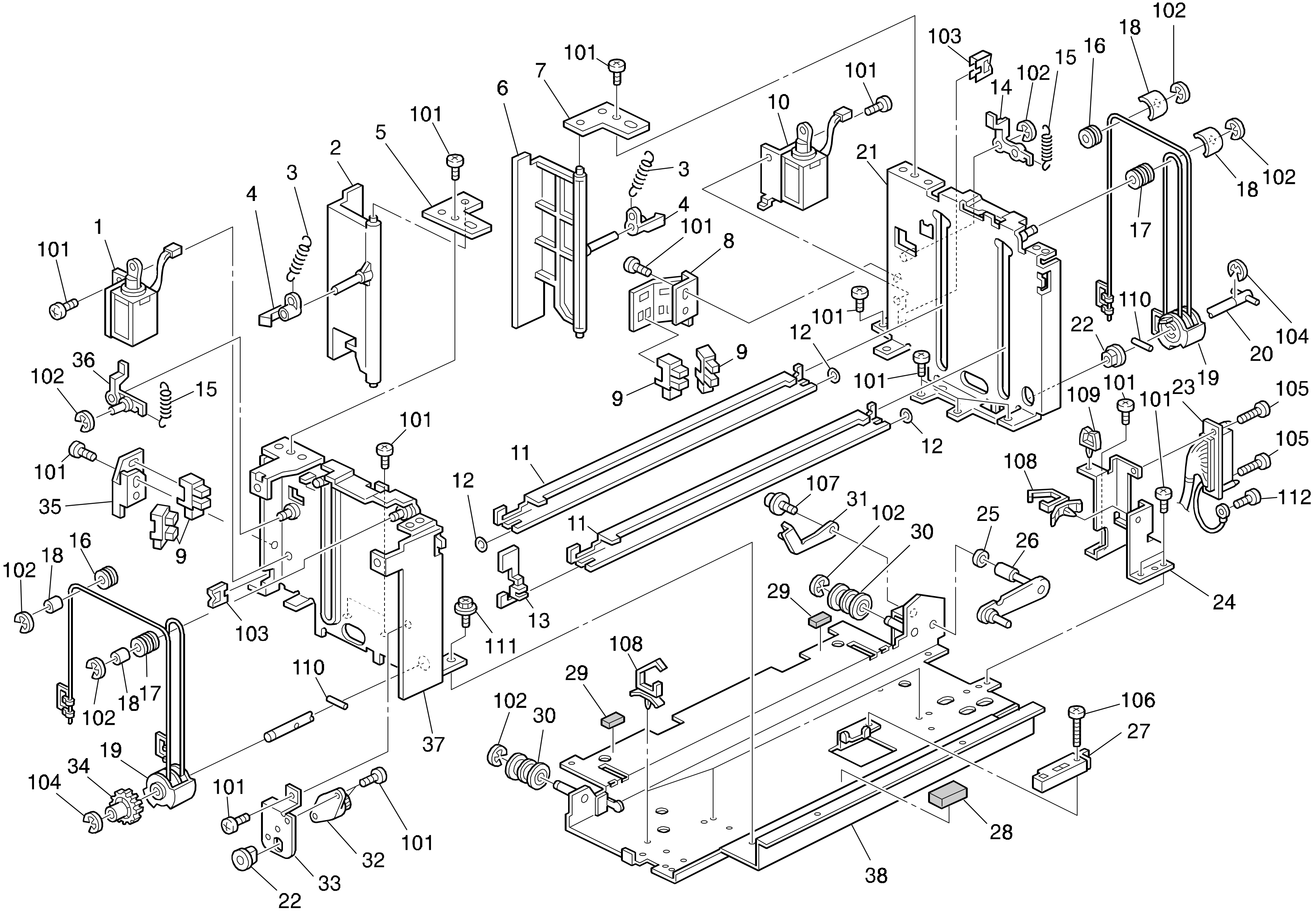
21.TANDEM TRAY 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 6612	Right Tandem Tray Ass'y - LT	1
*	A294 6610	Right Tandem Tray Ass'y - A4	1
1	A248 6659	Right Stopper	1
2	A294 6744	Inner Cover - Tandem LCT	1
3	AA00 2246	Decal - Caution	1
4	A248 6741	Protection - Inner Cover	1
5	AA00 2245	Decal - Paper Set - Right	1
6	A294 6736	Right Front Fence	1
7	A248 6681	Base - Right Tandem Tray	1
8	5201 2858	Friction Pad	1
9	A294 6706	Sensor Bracket	1
10	A294 6737	Right Fence	1
11	A176 6695	Misfeed Removal Guide	1
12	AW02 0056	Photointerruptor - EE-SX4235A-P1	5
13	AA00 2010	Decal - Paper Level	2
14	A294 6666	Side Plate	1
15	A096 6677	Decal - Right Paper Set	1
16	AA15 3063	Seal - 4x10x70	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0314 0060B	Philips Pan Head Screw - M4x6	
102	0951 4008B	Philips Screw With Washer - M4x8	
103	0452 4008B	Binding Self Tapping Screw - M4x8	
104	0434 0060B	Pan Head Self-tapping Screw - M4x6	
105	0951 4006B	Philips Screw With Washer - M4x6	
106	0344 0050F	Philips Truss Head Screw - M4X5	
107	1105 0328	Harness Clamp - ES-0505	

22.TANDEM TRAY 3 (A294)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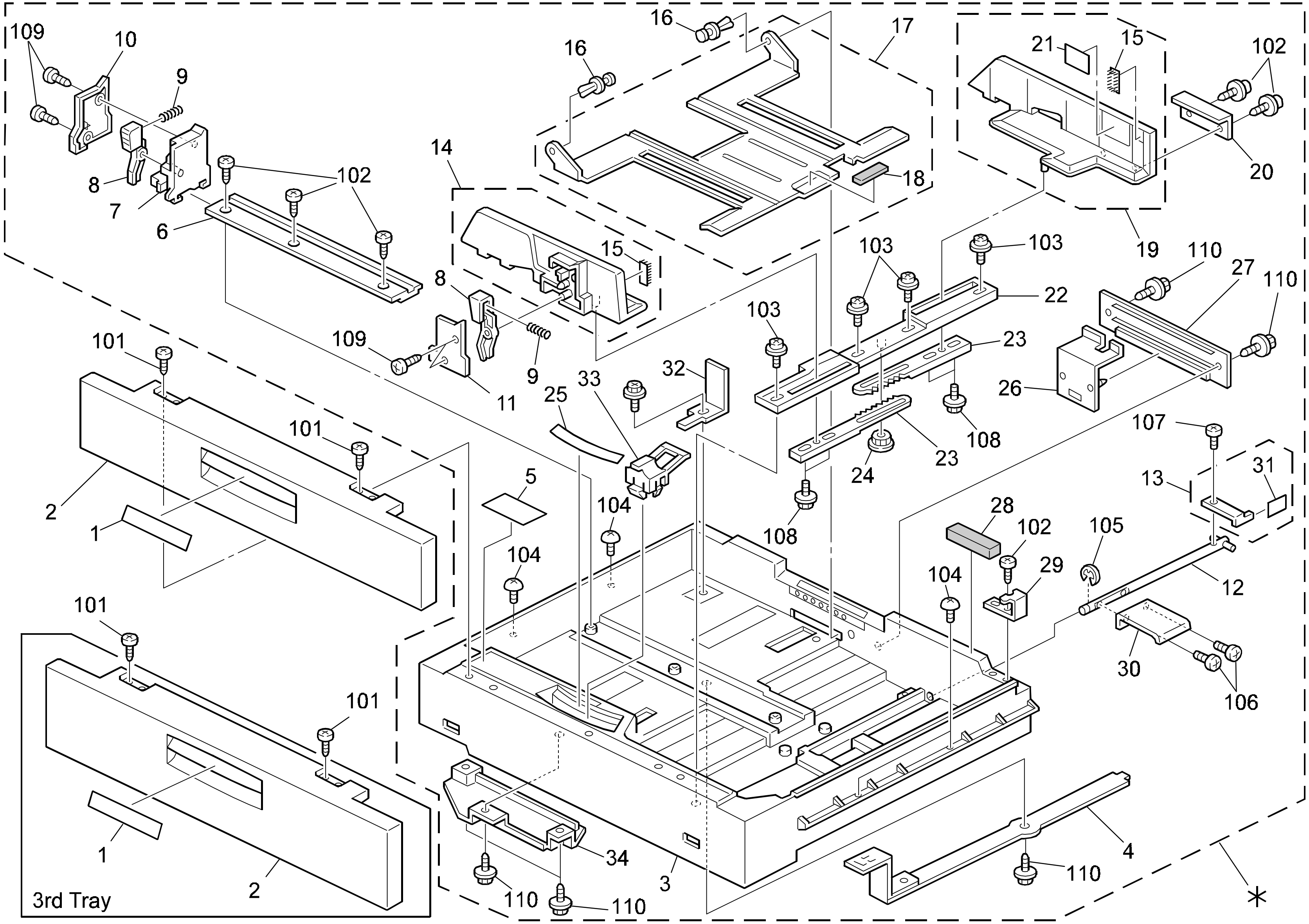
22.TANDEM TRAY 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A248 6714	DC Solenoid - Front End Fence	1
2	A294 6711	Front Side Fence	1
3	AA06 0757	Tension Spring - Long	2
4	A248 6713	Hook - Tension Sprong	2
5	A294 6722	Front Support Bracket	1
6	A294 6725	Rear End Fence	1
7	A294 6723	Rear Support Bracket	1
8	A294 6721	Sensor Bracket	1
9	AW02 0056	Photointerruptor - EE-SX4235A-P1	4
10	A248 6727	DC Solenoid - Rear End Fence	1
11	A248 6682	Stay - Right Base	2
12	A248 6694	Wire Ring	3
13	A294 6690	Feeler - Paper Height Sensor	1
14	A248 6730	Rear Release Lever	1
15	AA06 0758	Tension Spring - Short	2
16	AB03 2058	Wire Pulley - M10	2
17	AB03 2719	Pulley - M10	2
18	A248 6695	Guide - Pulley	4
19	A294 6688	Drive Wire Pulley Cover	2
20	A248 6687	Right Drive Shaft	1
21	A294 6676	Right Rear Side Plate	1
22	5053 0223	Bushing - 8mm	2
23	A294 5472	DC Harness - Tandem LCT	1
24	A248 6743	Connector Bracket	1
25	AA13 2203	Spacer - 6mm	1
26	A248 6746	Lever - Large	1
27	A010 5700	Sensor	1
28	AA16 1129	Cushion - Large	1
29	AA16 1130	Cushion - Small	2
30	AF02 2105	Roller - Slide Rail	2
31	A248 6753	Lever - Small	1
32	A248 6701	Oil Damper	1
33	A248 6703	Bracket - Oil Damper	1
34	AB01 3781	Gear - 30Z	1
35	A294 6720	Sensor Bracket	1

Index No.	Part No.	Description	Q'ty Per Assembly
36	A248 6717	Front Release Lever	1
37	A294 6668	Right Front Side Plate	1
38	A248 6655	Right Base - Tandem LCT	1
101	0434 0060B	Pan Head Self-tapping Screw - M4x6	
102	0720 0040B	Retaining Ring - M4	
103	1105 0328	Harness Clamp - ES-0505	
104	0720 0060B	Retaining Ring - M6	
105	0313 0080B	Philips Pan Head Screw - M3x8	
106	0313 0120B	Philips Pan Head Screw - M3x12	
107	0951 3006B	Philips Screw With Flat Washer - M3x6	
108	1105 0291	Harness Clamp - LWS-3S	
109	1105 0199	Clamp	
110	0633 0200G	Pin - M3x20	
111	0951 4008B	Philips Screw With Washer - M4x8	
112	0414 0080B	Binding Self-tapping Screw - M4x8	

23.UNIVERSAL TRAY (A294)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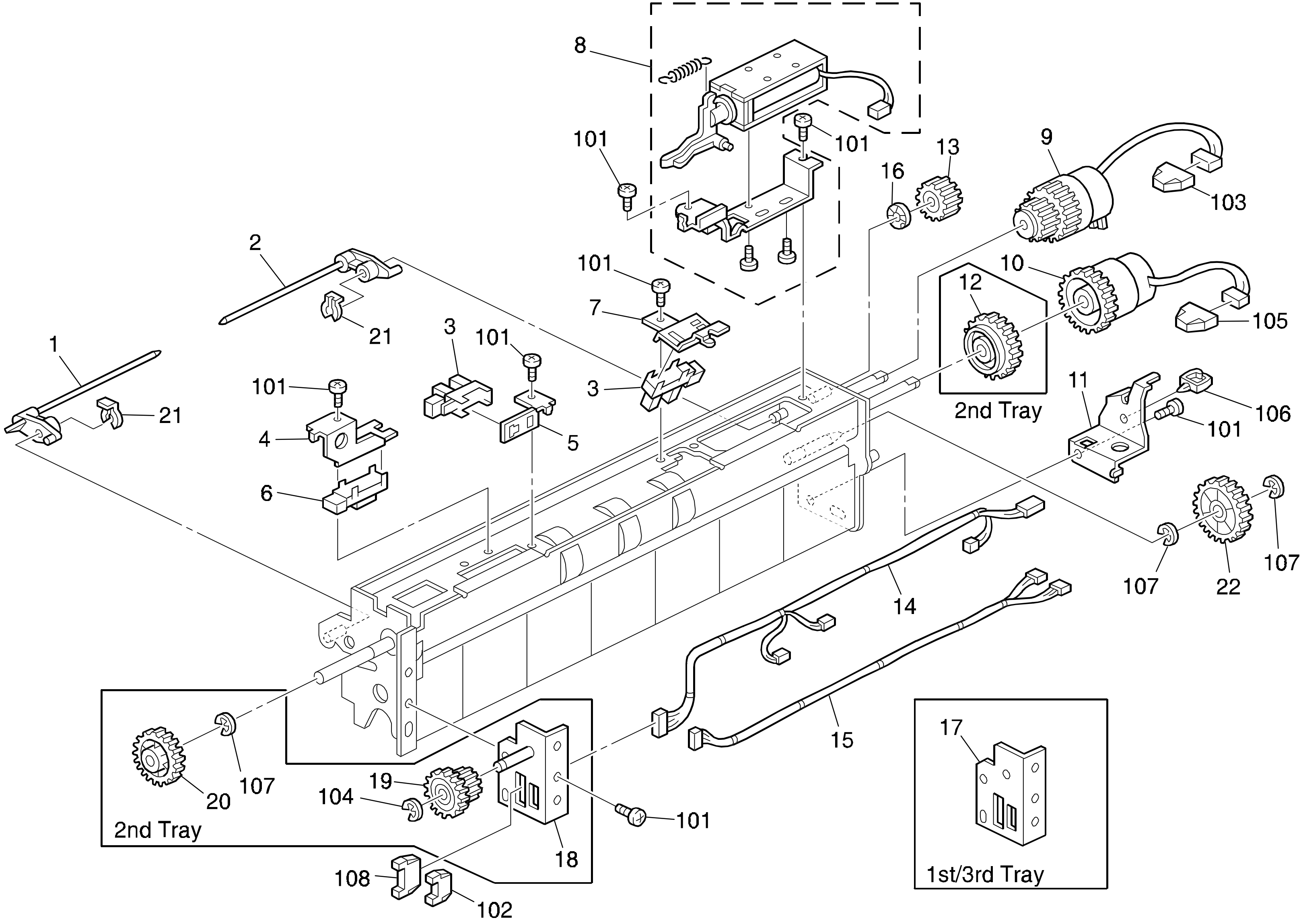
23.UNIVERSAL TRAY (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A293 6517	Universal Tray - LT	1
*	A293 6518	Universal Tray - A4	1
1	AA00 2238	Decal - Cover No.2	1
1	AA00 2239	Decal - Cover No.3	1
2	A229 6589	Paper Tray Front Cover (2nd Rtay)	1
2	A229 6620	Tandem Tray Front Cover (3rd Tray)	1
3	AF01 0072	Paper Tray	1
4	A293 6576	Link - Paper Size Lever	1
5	AA00 0213	Decal - Universal Tray	1
6	A096 6564	End Fence Plate	1
7	A096 6562	End Fence	1
8	A096 6537	Stopper Lever	2
9	AA06 6551	Stopper Spring - 24mm	2
10	A096 6563	End Fence Cover	1
11	A096 6536	Side Fence Cover	1
12	A096 6524	Lift Shaft	1
13	A096 6527	Paper Guide Feeler	1
14	A229 6534	Front Side Fence	1
15	A096 6553	Side Fence Pad	2
16	A048 2838	Nylon Rivet	2
17	A229 6556	Tray Bottom Plate	1
18	AF01 3005	Bottom Plate Pad	1
19	A229 6541	Rear Side Fence	1
20	A176 6570	Paper Stopper	1
21	AA00 2010	Decal - Paper Level	1
22	A229 6545	Side Fence Plate - LT	1
22	A229 6544	Side Fence Plate - A4	1
23	AB01 4132	Side Fence Gear	2
24	AB01 4094	Side Fence Gear	1
25	AA00 2251	Paper Size Decal - LT	1
25	AA00 2252	Paper Size Decal - A4	1
26	A293 6571	Actuator - Paper Size Switch	1
27	A293 6574	Actuator Guide	1
28	AA15 3004	Paper Guide Seal - 3	1
29	A176 6695	Misfeed Removal Guide	1

Index No.	Part No.	Description	Q'ty Per Assembly
30	A096 6526	Lift Lever	1
31	AA15 0359	Seal	1
32	AF01 6079	Left Rear Side Fence	1
33	A293 6575	Knob - Paper Size Selection	1
34	A293 6579	Link Guide	1
101	0452 4008B	Binding Self Tapping Screw - M4x8	
102	0414 0082B	Binding Self Tapping Screw - M4x8	
103	0450 3006B	Tapping Screw - M3x6	
104	0344 0050F	Philips Truss Head Screw - M4X5	
105	0720 0060B	Retaining Ring - M6	
106	0314 0080B	Philips Pan Head Screw - M4x8	
107	0313 0060B	Philips Pan Head Screw - M3x6	
108	0452 3008B	Tapping Screw - M3x8	
109	0413 0082B	Tapping Screw - M3x8	
110	0450 4008B	Tapping Screw - 4x8	

24.PAPER FEED UNIT 1 (A294)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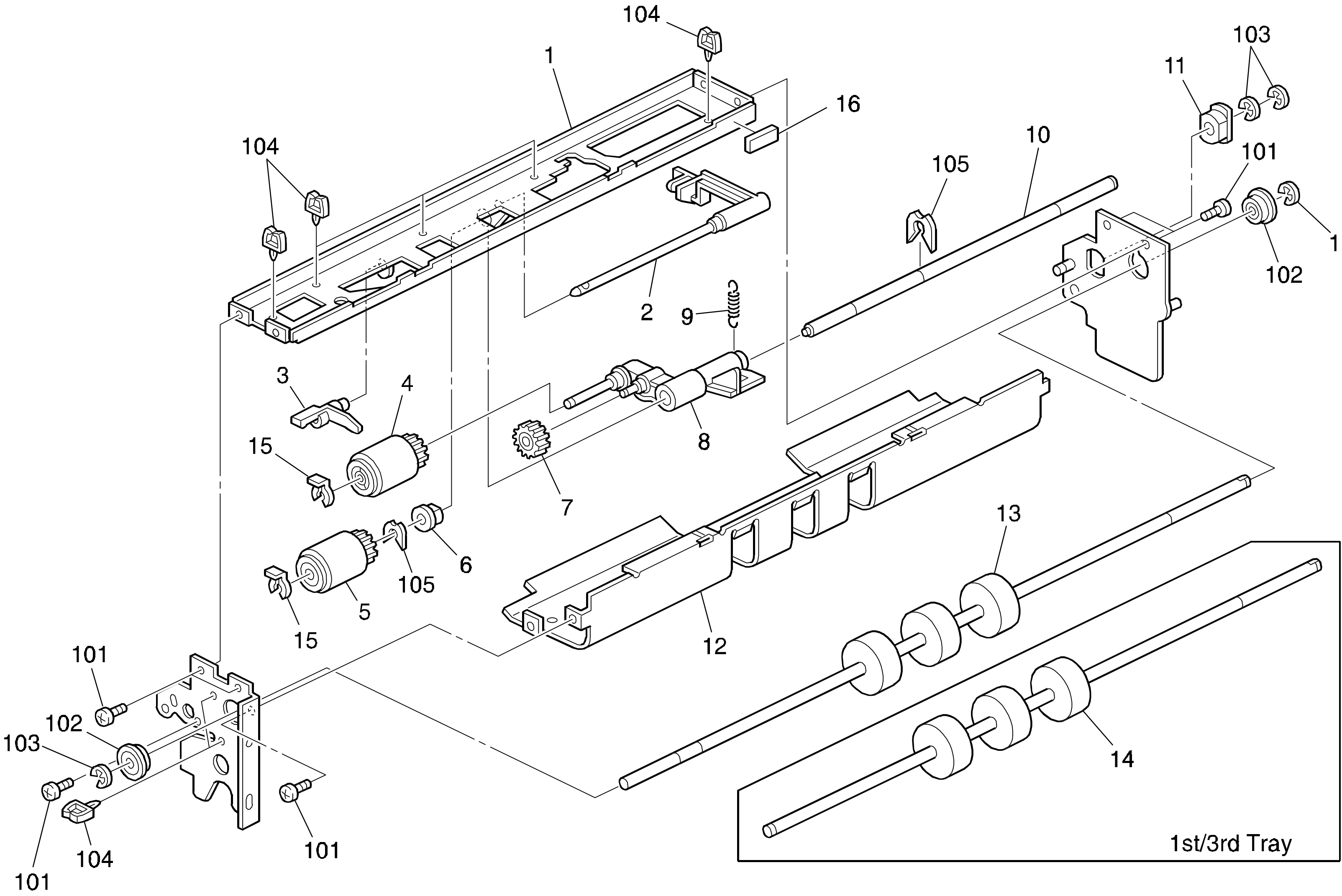
24.PAPER FEED UNIT 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A096 6363	Front Paper Flattener	3
2	A096 6360	Paper Flattener	3
3	AW02 0056	Photointerruptor - EE-SX4235A-P1	6
4	A229 6353	Photo Refiection Sensor Bracket	3
5	A229 6345	Paper End Sensor Bracket	3
6	AW01 0049	Photo Reflection Sensor	3
7	A229 6358	Paper Sensor Bracket	3
8	A229 6355	Pick-up Solenoid Ass'y	3
9	AX20 0176	Magnetic Clutch	3
10	AX20 0147	Magnetic Clutch	3
11	A294 6366	Magnetic Clutch Arm	3
12	AB01 4069	Drive Gear - Misfeed Removal	1
13	AB01 3000	Idler Gear - 18Z	3
14	A229 5497	Upper Harness	3
15	A229 5496	Lower Harness	3
16	AA16 0020	Felt Wick Spacer - 6x12x2	3
17	A229 6382	Paper Feed Unit Stay - Tandem	2
18	A229 6381	Paper Feed Unit Stay Ass'y	1
19	AB01 3780	Gear	1
20	AB01 3778	Gear - 32Z	1
21	5447 2681	Snap Ring	6
22	AB01 3775	Gear - 33Z	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0434 0060B	Pan Head Self-tapping Screw - M4x6	
102	1102 6254	Connector - 11P	
103	1102 6259	Connector - 2P	
104	0720 0040B	Retaining Ring - M4	
105	1102 6245	Relay Connector - 2P	
106	1105 0199	Clamp	
107	0720 0060B	Retaining Ring - M6	
108	1102 6249	Relay Connector - 6P	

25.PAPER FEED UNIT 2 (A294)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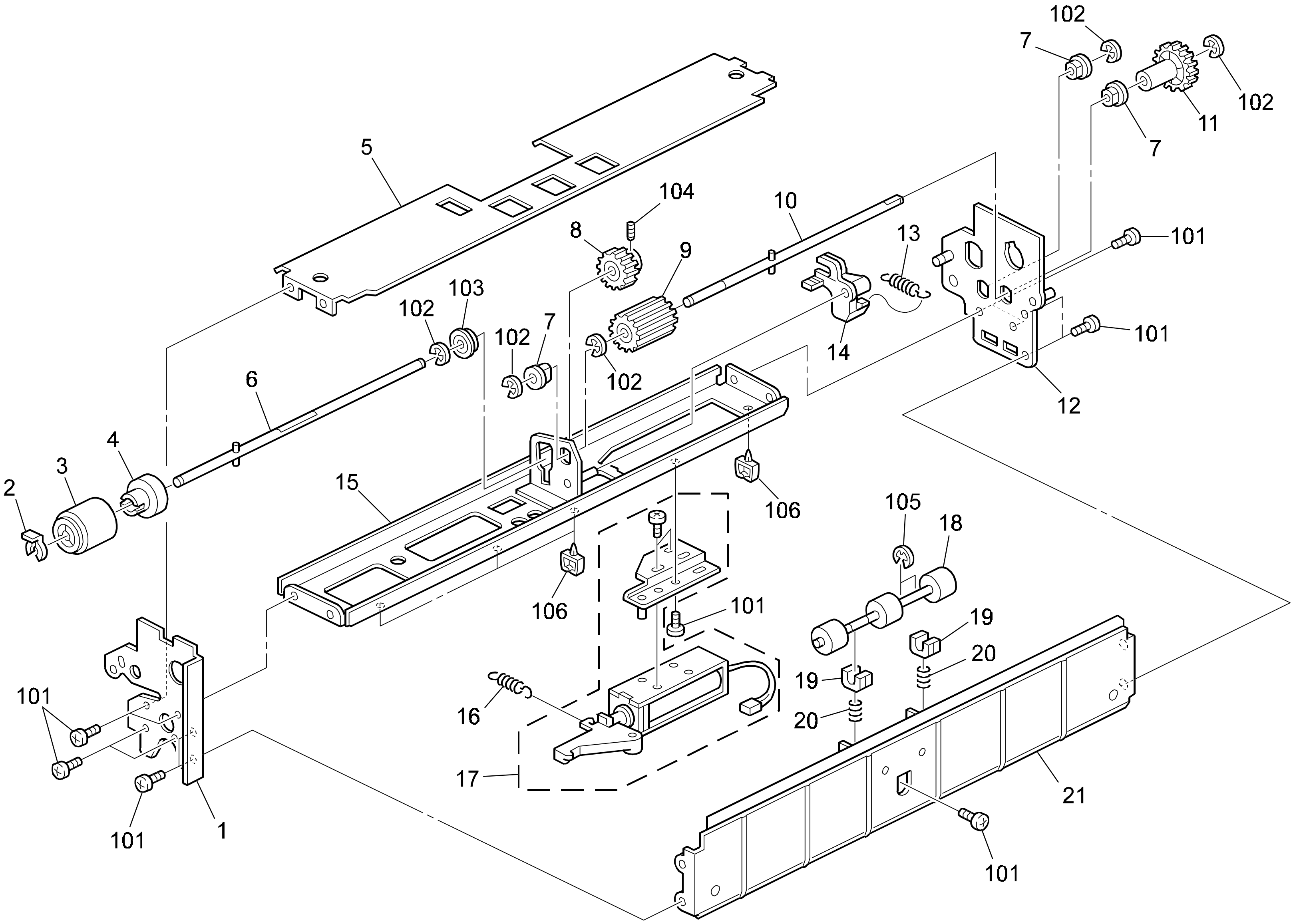
25.PAPER FEED UNIT 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A229 6346	Feed Stay	3
2	A229 6362	Paper End Feeler	3
3	A096 6344	Paper End Actuater	3
4	**AF03 0040**	**Pick-up Roller**	**3**
5	**AF03 1040**	**Feed Roller**	**3**
6	AA08 2070	Bushing - 8x16x7	3
7	5447 2706	Gear - 15T	3
8	A134 2860	Pick-up Arm	3
9	AA06 0523	Pick-up Pressure Sping	3
10	AA14 0717	Feed Roller Shaft	3
11	AA08 3009	Clutch Roller - 8x18x11	3
12	A249 6339	Feed Guide Plate	3
13	AF02 0426	Drive Transport Roller - LCT	1
14	AF02 0425	Drive Transport Roller - Grip	2
15	5447 2681	Snap Ring	6
16	5442 1924	Exposure Glass Cushion	3

Index No.	Part No.	Description	Q'ty Per Assembly
101	0434 0060B	Pan Head Self-tapping Screw - M4x6	
102	0742 3808	Ball Bearing - 8x16x5	
103	0720 0060B	Retaining Ring - M6	
104	1105 0199	Clamp	
105	0805 0088	Retaining Ring - M6	

26.PAPER FEED UNIT 3 (A294)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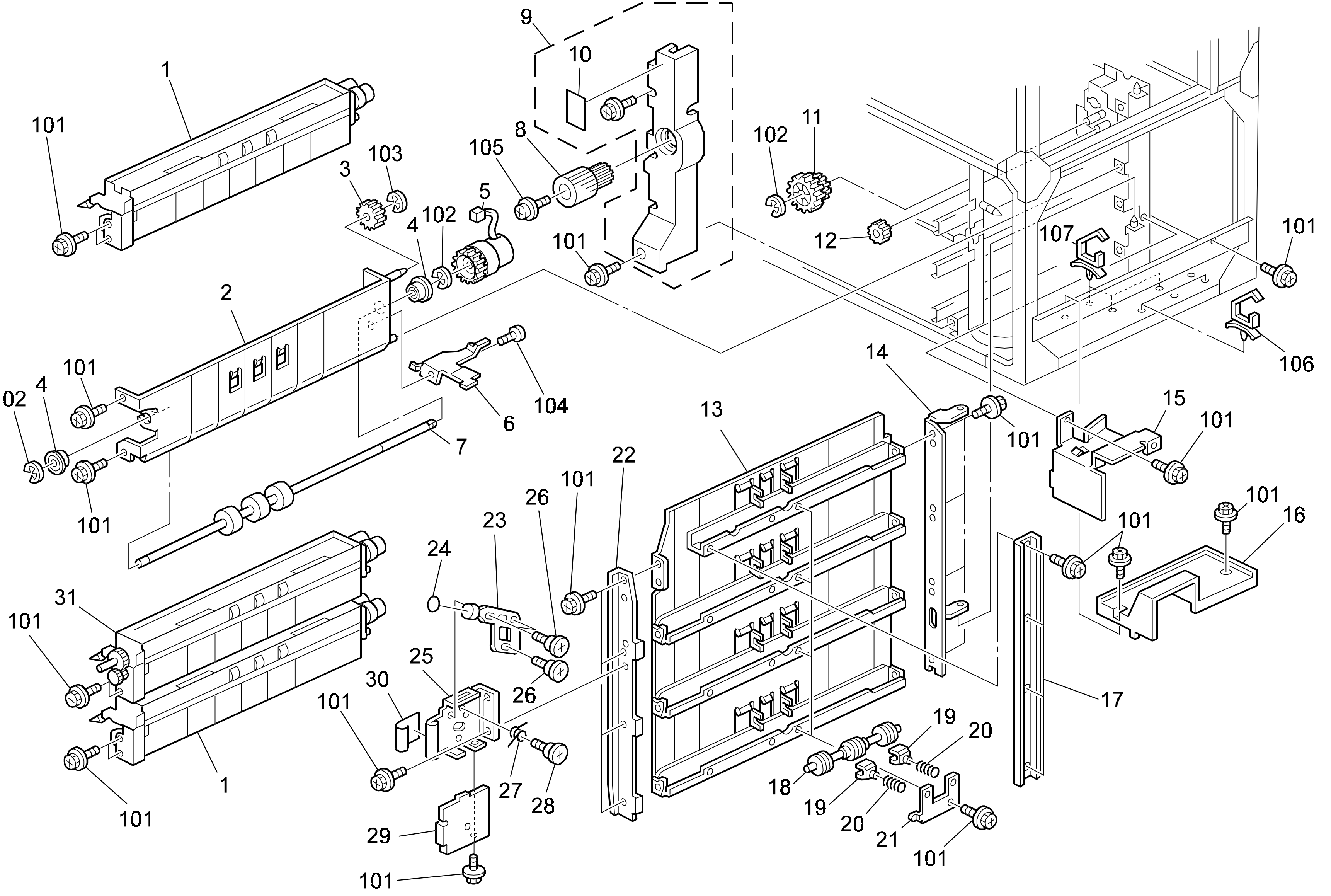
26.PAPER FEED UNIT 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A229 6335	Front Side Plate	3
2	5447 2681	Snap Ring	3
3	**AF03 2040**	**Separation Roller**	**3**
4	A247 2900	Torque Limiter - 53mnxm	3
5	A229 6338	Reverse Guide Plate	3
6	A229 6307	Reverse Driven Shaft	3
7	5053 0447	Bushing - 6mm	9
8	AB01 1391	Driven Reverse Gear - 21Z	3
9	AB01 1392	Drive Reverse Gear - 24Z	3
10	A229 6306	Reverse Drive Shaft	3
11	AB01 3776	Gear - 30Z	3
12	A229 6330	Rear Side Plate	3
13	AA06 0636	Pressure Spring	3
14	A229 6309	Reverse Pressure Lever	3
15	A229 6303	Reverse Stay	3
16	AA06 0575	Release Spring	3
17	A229 6315	Reverse DC Solenoid	3
18	A100 2602	Transport Pressure Roller	3
19	AA08 0156	Bushing - M4	6
20	AA06 3487	Spring - 10mm	6
21	A229 6370	Pape Guide Plate	3

Index No.	Part No.	Description	Q'ty Per Assembly
101	0434 0060B	Pan Head Self-tapping Screw - M4x6	
102	0720 0040B	Retaining Ring - M4	
103	0805 3145	Ball Bearing - 6x12x4mm	
104	0573 0030E	Hexagon Headless Set Screw - M3x3	
105	0720 0030B	Retaining Ring - M3	
106	1105 0199	Clamp	

27.VERTICAL TRANSPORT (A294)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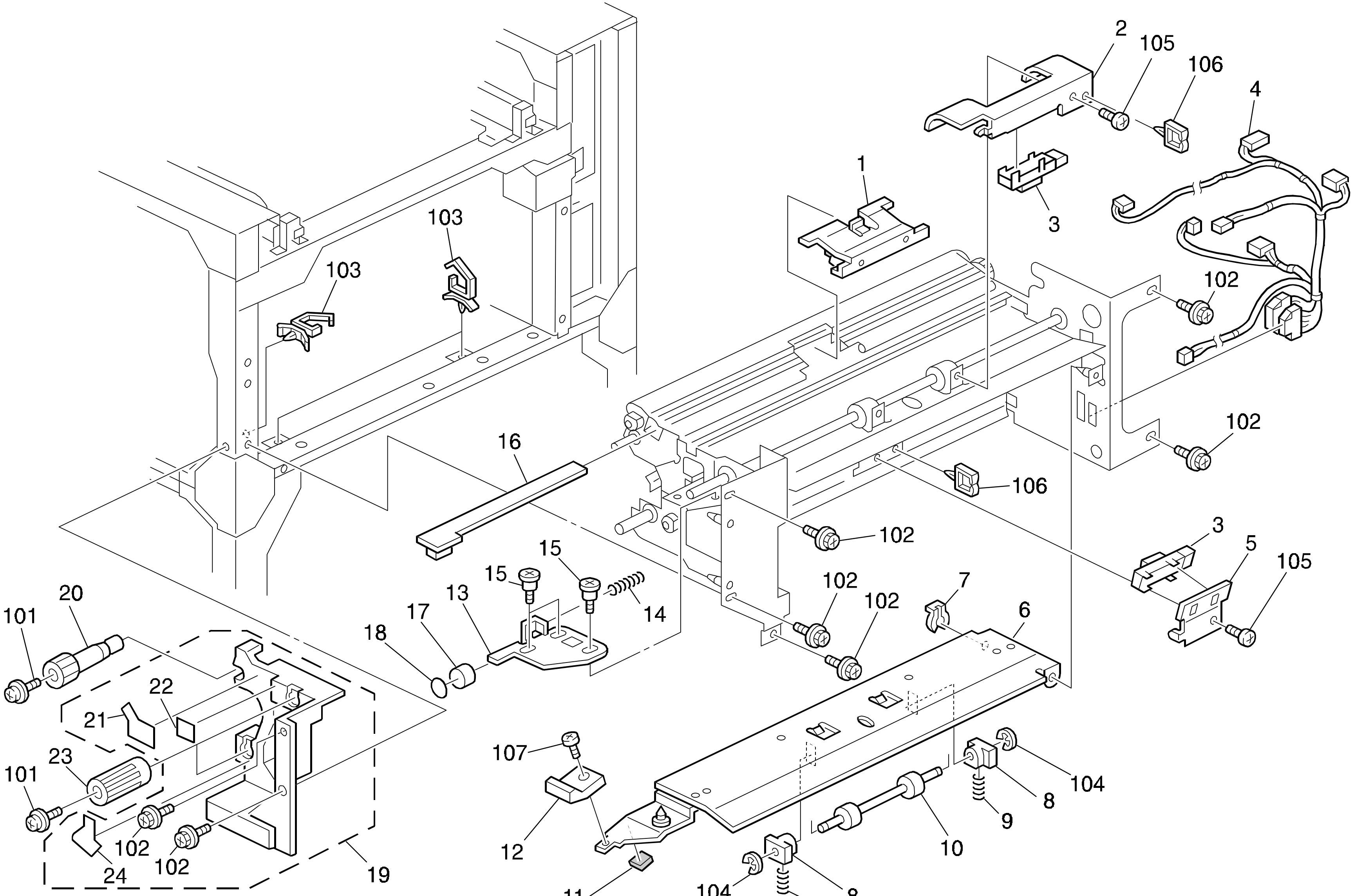
27.VERTICAL TRANSPORT (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 6320	Paper Feed Unit	2
2	A294 6371	Guide Plate	1
3	AB01 3000	Idler Gear - 18Z	1
4	A232 3566	Ball Bearing - 8x16x5	2
5	AX20 0147	Magnetic Clutch	1
6	A294 2752	Magnetic Clutch Holder	1
7	A294 6376	Transport Roller	1
8	AG05 0067	Knob - Transport Roller	1
9	A294 6183	Inner Cover - Paper Tray	1
10	AA00 0540	Decal - Misfeed Removal	1
11	AB01 7516	Gear - 32Z/22Z	1
12	AB01 3000	Idler Gear - 18Z	1
13	A294 6405	Guide Plate - Upper Transport	1
14	A294 6404	Rear Side Plate	1
15	A294 1525	Harness Cover Plate	1
16	A294 1524	Harness Cover	1
17	A294 6409	Stay	1
18	AF02 0295	Vertical Driven Roller	4
19	AA08 0241	Bushing - M4	8
20	AA06 3487	Spring - 10mm	8
21	A096 6402	Pressure Plate Driven Roller	4
22	A294 6403	Front Side Plate	1
23	A029 2858	Release Lever	1
24	AA00 1326	Decal - A1	1
25	A294 6426	Release Lever - Vertical Transport	1
26	5201 1796	Stepped Screw - M4	3
27	5446 2846	Release Spring - Vertical Transport	1
28	5403 6246	Stepped Screw - Cleaning	1
29	A096 6413	Release Lever Cover	1
30	A029 2984	Decal - Grip	1
31	A294 6321	Paper Feed Unit - 2nd	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0720 0060B	Retaining Ring - M6	
103	0720 0040B	Retaining Ring - M4	
104	0951 4008B	Philips Screw With Washer - M4x8	
105	0314 0060B	Philips Pan Head Screw - M4x6	
106	1105 0210	Clamp. Flate Cable	
107	1105 0292	Wire Saddle	

28.PAPER REGISTRATION 1 (A294)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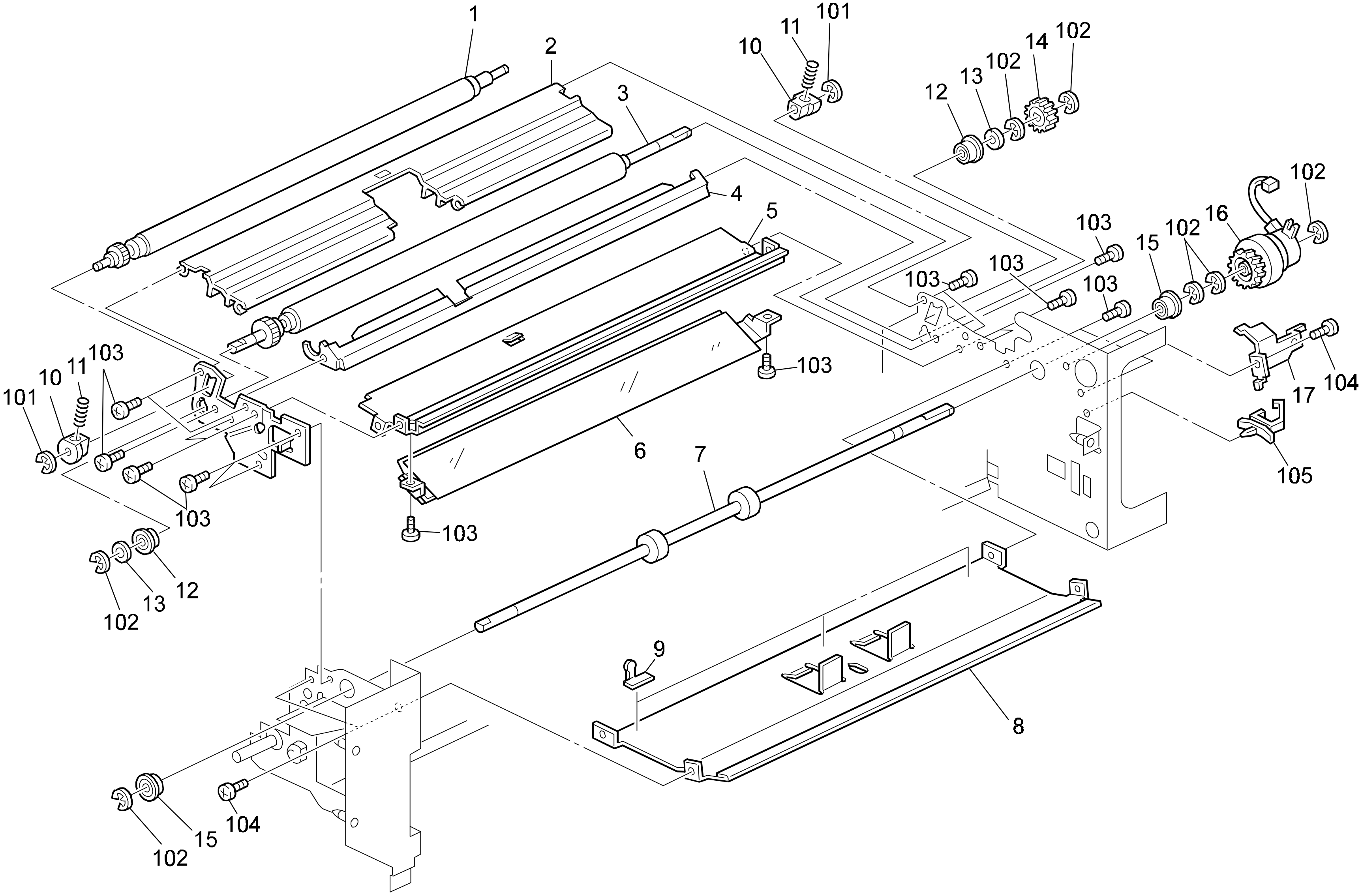
28.PAPER REGISTRATION 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A096 2607	Paper Dust Cleaner	1
2	A294 2701	Bracket - LCT Transport Sensor	1
3	AW01 0049	Photo Reflection Sensor	2
4	A294 5481	Harness - Paper Feed Unit	1
5	A294 2661	Bracket - Transport Sensor	1
6	A294 2684	Guide Plate - LCT Exit	1
7	5447 2681	Snap Ring	1
8	AA08 0034	Bushing - 4x5x7	2
9	AA06 3255	Exit Roller Spring	2
10	AF02 0288	Duplex Exit Roller	1
11	A469 2123	Rubber Cushion - 1x10x10mm	1
12	AG05 1141	Release Lever	1
13	A294 2694	Release Lever	1
14	AA06 3131	Spring	1
15	5201 1796	Stepped Screw - M4	3
16	A096 5200	Registration Sensor Board	1
17	A029 2859	Release Button	1
18	AA00 1410	Decal - Paper Feed B4	1
19	A294 2780	Inner Cover - Paper Feed	1
20	A060 2512	Registration Roller Knob	1
21	AA00 1412	Decal - Paper Feed C2	1
22	AA00 1413	Decal - Paper Feed B3	1
23	A079 2861	Knob - Transport Roller	1
24	AA00 1411	Decal - Paper Feed B1	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0951 4008B	Philips Screw With Washer - M4x8	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	1105 0291	Harness Clamp - LWS-3S	
104	0720 0030B	Retaining Ring - M3	
105	0434 0060B	Pan Head Self-tapping Screw - M4x6	
106	1105 0199	Clamp	
107	0314 0040B	Philips Pan Head Screw - M4x4	

29.PAPER REGISTRATION 2 (A294)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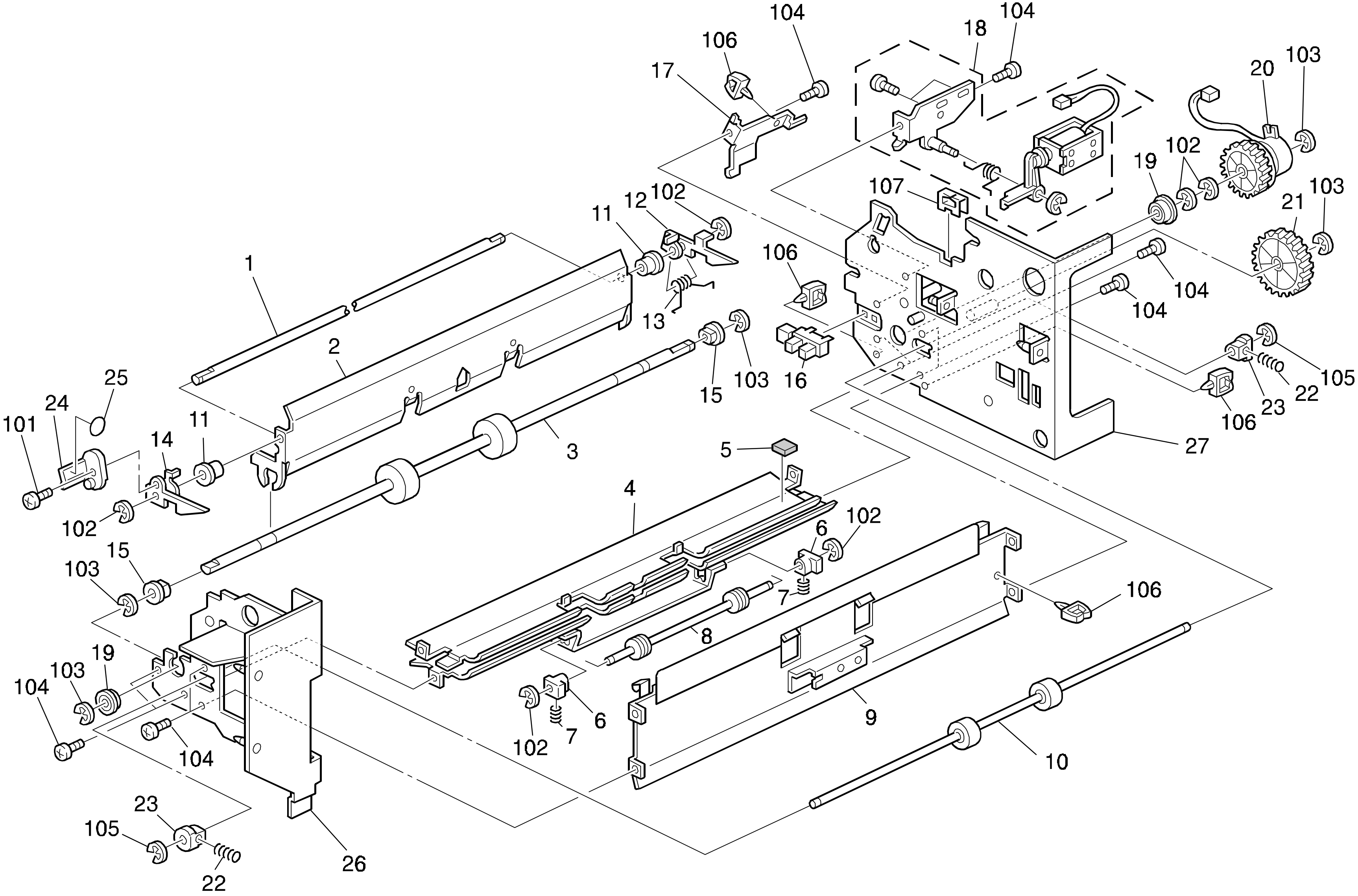
29.PAPER REGISTRATION 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A229 2618	Upper Registration Roller	1
2	A229 2619	Sensor Board Guide	1
3	A229 2617	Lower Registration Roller	1
4	A096 2612	Lower Registration Guide	1
5	A096 2626	Front Upper Resistration Guide	1
6	A096 2622	Front Lower Registration Guide	1
7	A294 2705	Roller - LCT Exit	1
8	A294 2697	Guide Plate - LCT Exit	1
9	A096 4944	Harness Clamp	3
10	5205 2697	Bushing - Upper Registration Roller	2
11	5442 2754	Spring - Registration Roller	2
12	A247 2800	Ball Bearing - 8x12x5	2
13	AA13 2025	Spacer - 1x8x12	2
14	AB01 4077	Registration Roller Gear	1
15	A232 3566	Ball Bearing - 8x16x5	2
16	AX20 0175	Magnetic Clutch - Z35	1
17	A294 2752	Magnetic Clutch Holder	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0040B	Retaining Ring - M4	
102	0720 0060B	Retaining Ring - M6	
103	0314 0060B	Philips Pan Head Screw - M4x6	
104	0434 0060B	Pan Head Self-tapping Screw - M4x6	
105	1105 0310	Harness Clamp - LWS-1S	

30.PAPER REGISTRATION 3 (A294)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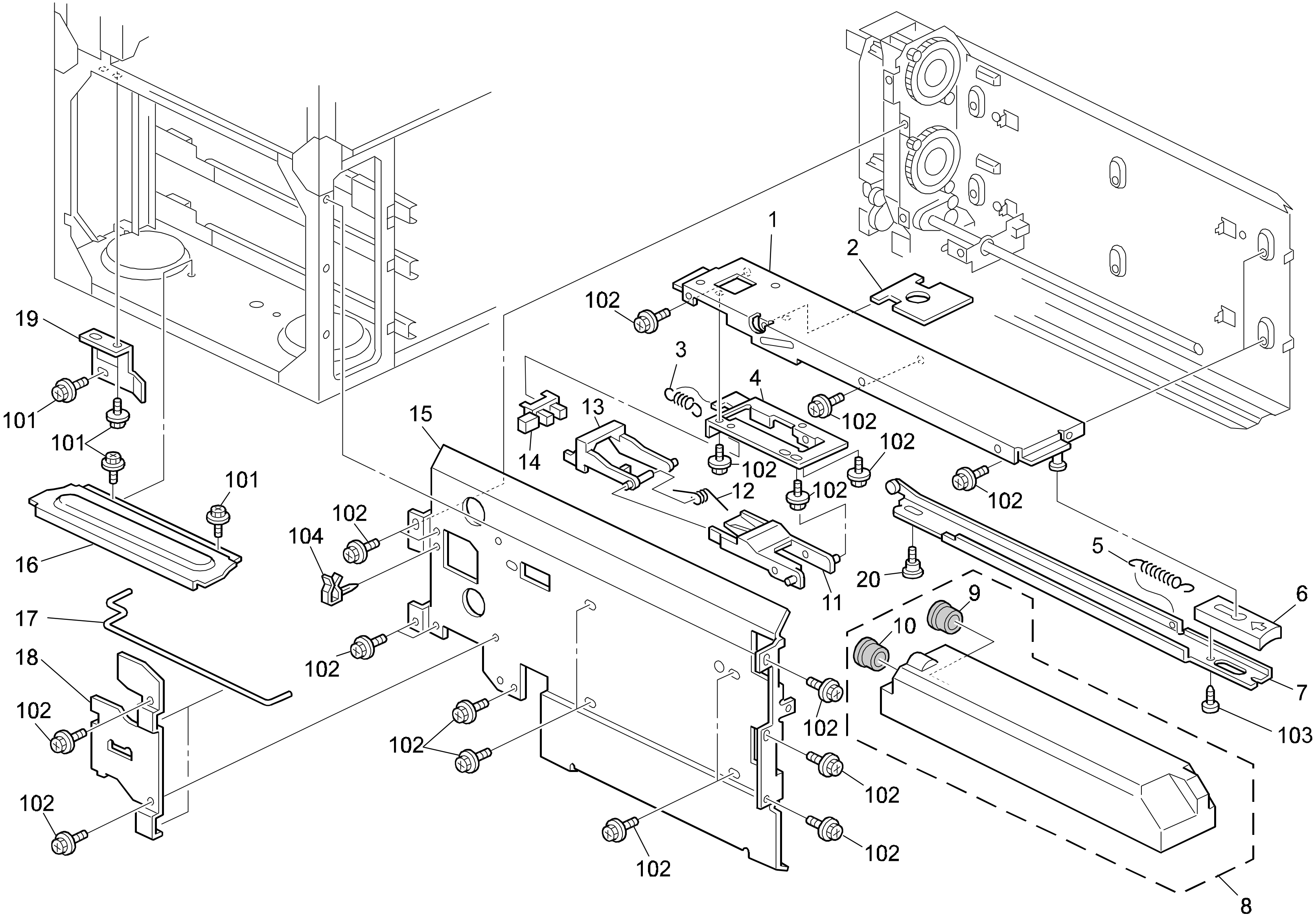
30.PAPER REGISTRATION 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AA14 0486	Lock Shaft	1
2	A229 2648	Transport Guide Plate	1
3	A294 2643	Transport Roller	1
4	A294 2672	Guide Plate - Duplex Exit	1
5	A469 2123	Rubber Cushion - 1x10x10mm	1
6	AA08 0034	Bushing - 4x5x7	2
7	AA06 3255	Exit Roller Spring	2
8	A294 2678	Roller - Duplex Exit	1
9	A294 2651	Guide Plate - Vertical Transport	1
10	AF02 2110	Transport Driven Roller	1
11	5443 2668	Bushing - 4x6x7mm	2
12	A096 2634	Rear Lock	1
13	AA06 6211	Rear Lock Spring	1
14	A096 2633	Front Lock	1
15	5053 0223	Bushing - 8mm	2
16	AW02 0056	Photointerruptor - EE-SX4235A-P1	1
17	A294 2752	Magnetic Clutch Holder	1
18	A229 2660	Guide Shutter Solenoid	1
19	A232 3566	Ball Bearing - 8x16x5	2
20	AX20 0174	Magnetic Clutch - Z52	1
21	AB01 1411	Gear - Z56	1
22	AA06 3254	Driven Roller Spring	2
23	5205 2697	Bushing - Upper Registration Roller	2
24	A229 2717	Lock Lever	1
25	AA00 1213	Decal - B2	1
26	A294 2600	Front Side Plate	1
27	A294 2605	Rear Side Plate	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0313 0050B	Philips Pan Head Screw - M3x5	
102	0720 0030B	Retaining Ring - M3	
103	0720 0060B	Retaining Ring - M6	
104	0434 0060B	Pan Head Self-tapping Screw - M4x6	
105	0720 0040B	Retaining Ring - M4	
106	1105 0199	Clamp	
107	1105 0328	Harness Clamp - ES-0505	

31.TONER BANK UNIT 1 (A294)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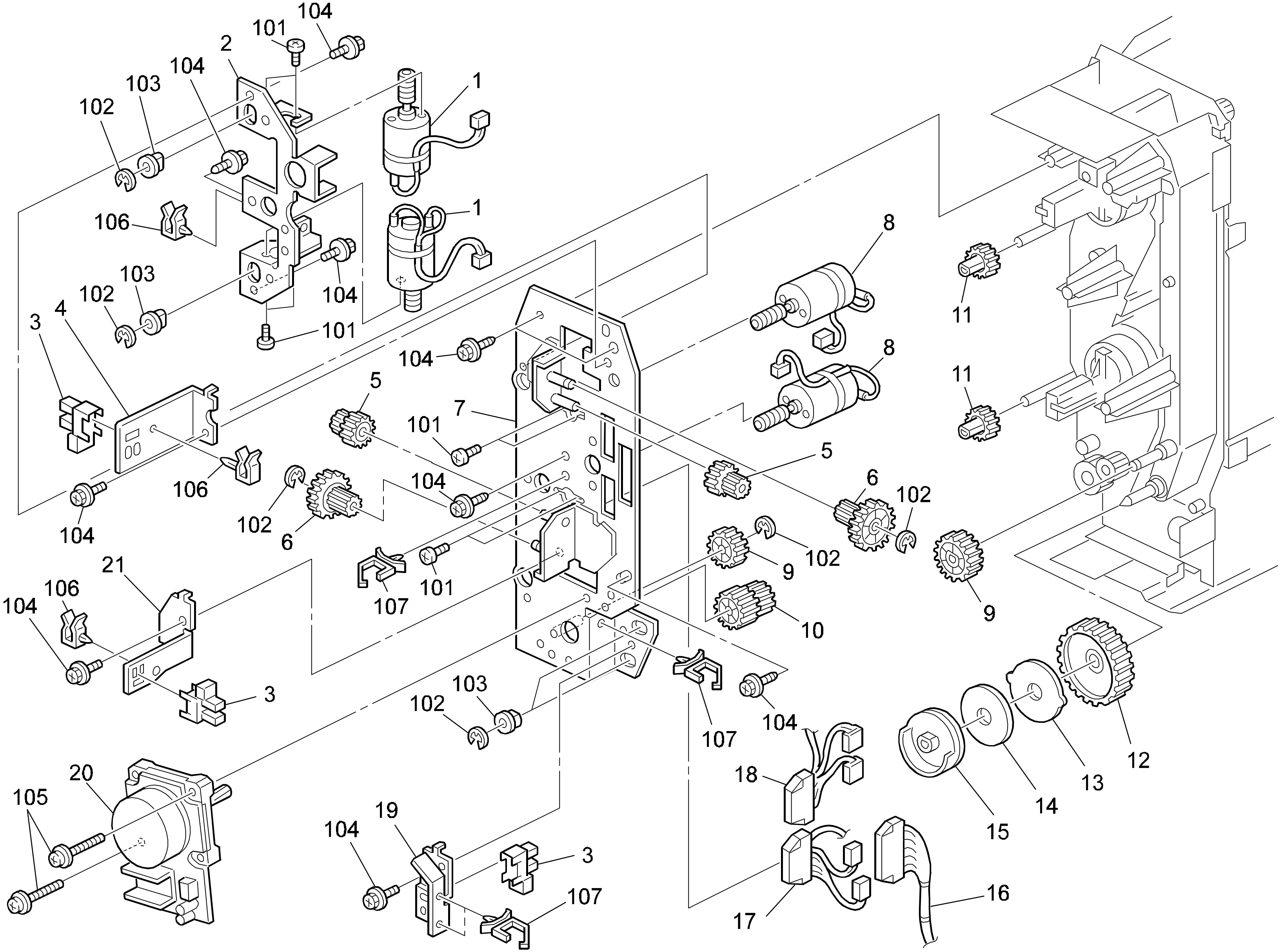
31.TONER BANK UNIT 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 3309	Toner Bank Unit - EU (RIC)	1
*	A294 3308	Toner Bank Unit - USA (RIC)	1
*	A294 3282	Toner Bank Unit (INF/LAN)	1
*	A294 3272	Toner Bank Unit (NRG/SVN)	1
1	A294 3442	Toner Bottle Guide Plate	2
2	A294 3454	Lever Stopper	2
3	AA06 0812	Lever Tension Spring	2
4	A294 3445	Stopper Support Plate	2
5	AA06 0811	Tension Spring - Stopper	2
6	A294 3453	Toner Bottle Release Lever	2
7	A294 3451	Lever Holder	2
8	A294 3465	Toner Collection Bottle	1
9	A007 3751	Large Cap - Toner Collection Tank	1
10	AA15 2315	Tank Seal	1
11	A294 3446	Toner Bottle Stopper	2
12	AA06 6320	Feeler Tortion Spring	2
13	A294 3447	Toner Bottle Set Feeler	2
14	AW02 0056	Photointerruptor - EE-SX4235A-P1	2
15	A294 3436	Left Side Plate - Toner Bank	1
16	A294 3496	Toner Bank Guide Rail	1
17	A294 3461	Lever Rack Joint	2
18	A294 3462	Joint Holder	1
19	A294 3495	Fixing Plate	1
20	AA14 3062	Shoulder Screw - M4	2

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0451 4006B	Tapping Screw - 4x6	
103	0452 4008B	Binding Self Tapping Screw - M4x8	
104	1105 0267	Harness Clamp - YMC-10-0	

32.TONER BANK UNIT 2 (A294)



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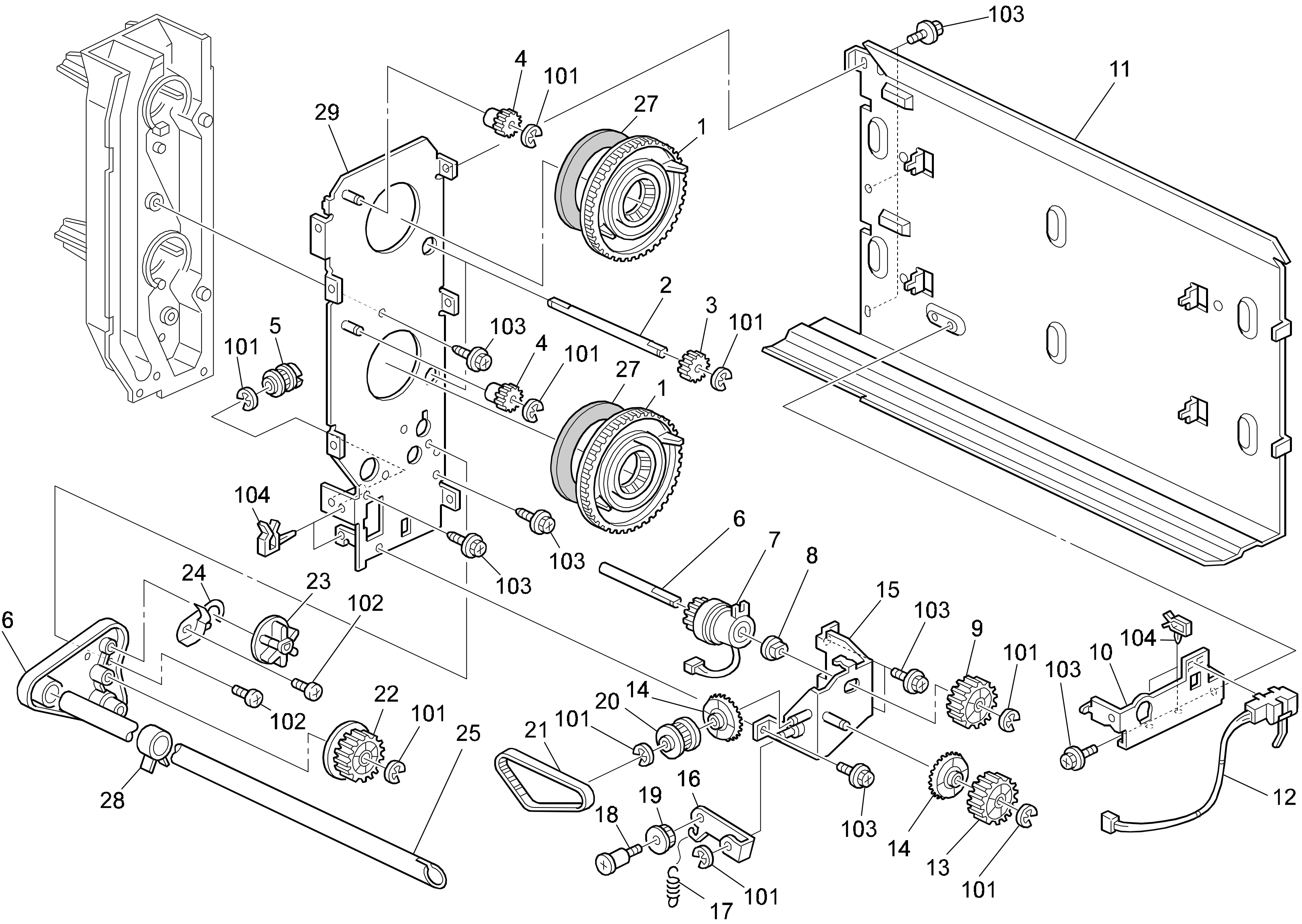
32.TONER BANK UNIT 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 3372	Motor - DC 5.85W	2
2	A294 3371	Motor Bracket	1
3	AW02 0056	Photointerruptor - EE-SX4235A-P1	3
4	A294 3378	Position Sensor Bracket - Upper	1
5	AB01 7513	Double Gear - 16/47Z	2
6	AB01 7514	Double Gear - 12/27Z	2
7	A294 3362	Toner Bottle Bracket	1
8	A294 3375	Motor - DC 5.85W	2
9	AB01 2004	Gear - 27Z	2
10	AB01 7515	Double Gear - 12/23Z	1
11	AB01 2008	Gear - 23Z	2
12	AB01 2012	Gear - 51Z	1
13	A294 3419	Joint Disk	1
14	A294 3416	Toner Recycling Magnet	1
15	A294 3414	Toner Collection Coil Joint	1
16	A294 5493	Toner Bank Harness - 15p	1
17	A294 5492	Toner Bank Harness - 10p Red	1
18	A294 5491	Toner Bank Harness - 10p White	1
19	A294 3377	Sensor Bracket	1
20	A294 3426	Motor - DC 5.1W	1
21	A294 3379	Position Sensor Bracket - Lower	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0312 5050B	Pan Head Screw - M2.5x5	
102	0720 0040B	Retaining Ring - M4	
103	0805 3480	Bushing - 6mm	
104	0451 4006B	Tapping Screw - 4x6	
105	0451 3012B	Tapping Screw With Washer - M3x12	
106	1105 0267	Harness Clamp - YMC-10-0	
107	1105 0460	Clamp	

33.TONER SUPPLY UNIT 1 (A294)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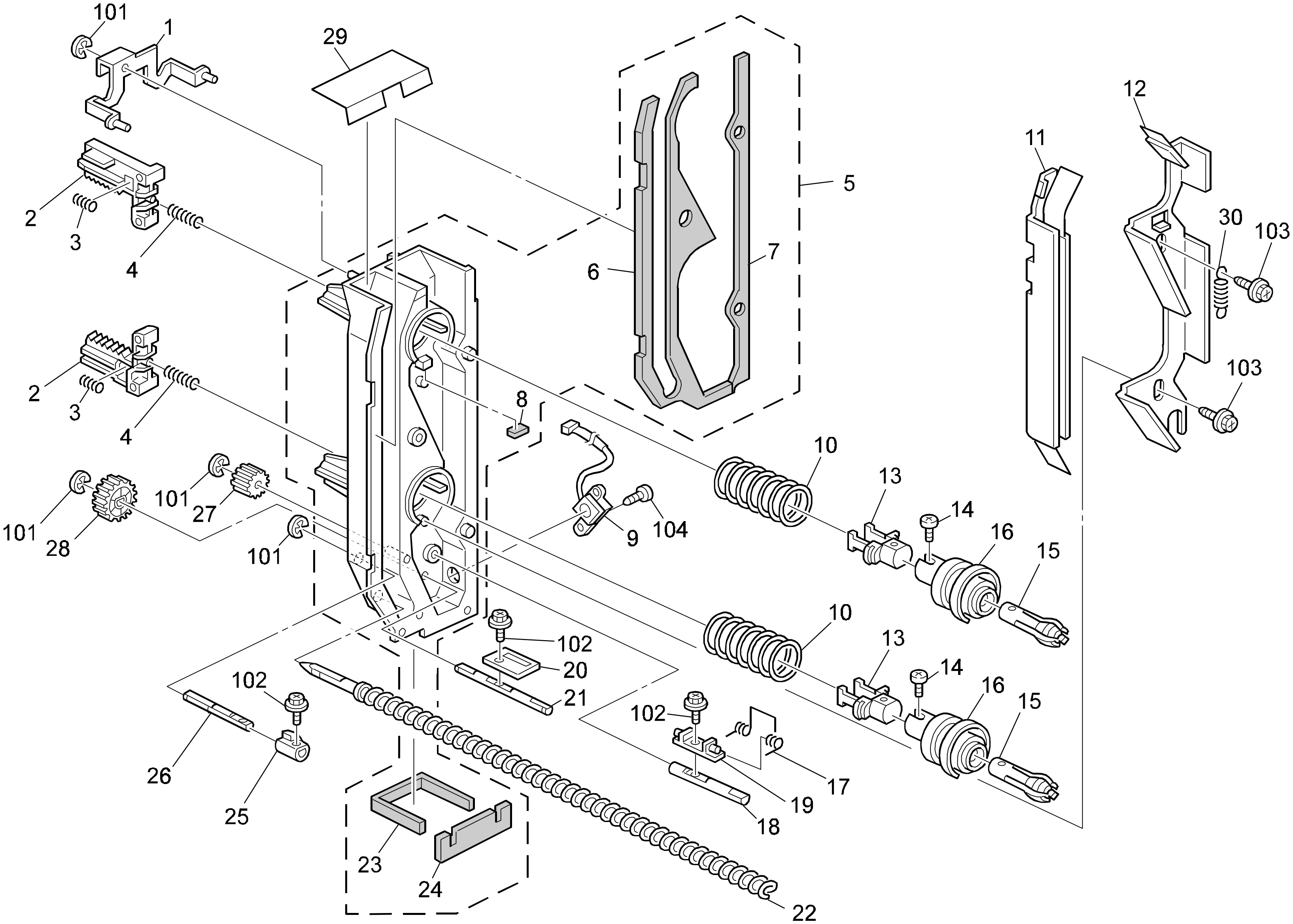
33.TONER SUPPLY UNIT 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 3276	Gear - 108Z USA (RIC)	2
1	A294 3277	Gear - 108Z EU (RIC)	2
1	A294 3278	Gear - 108Z OEM (NRG/SVN)	2
1	A294 3279	Gear - 108Z OEM2 (INF/LAN)	2
2	A294 3382	Toner Bottle Drive Shaft	2
3	AB01 2007	Gear - 14Z	2
4	AB01 2005	Gear - 13Z	2
5	AB03 0643	Pulley - 23Z	1
6	A294 3406	Clutch Shaft	1
7	G024 5456	Registration Solenoid - 25Ncm	1
8	AA08 2058	Bushing - 6x10x9mm	1
9	AB01 2009	Gear - 34Z	1
10	A294 3456	Sensor Bracket - Toner Bank	1
11	A294 3432	Right Side Plate - Toner Bank	1
12	AW02 0059	Duplex Paper Sensor	1
13	AB01 2010	Gear - 34Z	1
14	A294 1163	Gear - 30Z	2
15	A294 3402	Clutch Bracket	1
16	A294 3408	Tightener Bracket	1
17	AA06 0308	Spring	1
18	AA14 3444	Stepped Screw	1
19	AB03 0317	Gate Tightener	1
20	AB03 0542	Pulley - 36Z	1
21	AA04 3283	Timing Belt - 50S2M194	1
22	A294 3391	Gear - 32Z	1
23	A294 3390	Spring Shaft Cam	1
24	A294 3393	Cam Stopper	1
25	A294 3415	Toner Collection Pipe	1
26	A294 3386	Driving Case	1
27	AA15 2299	Bottle Hold Seal	2
28	A294 3422	Pipe Stopper-toner Collection Coil	1
29	A294 3346	Toner Bank Side Plate	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0040B	Retaining Ring - M4	
102	0354 0060B	Screw - M4X6	
103	0451 4006B	Tapping Screw - 4x6	
104	1105 0267	Harness Clamp - YMC-10-0	

34.TONER SUPPLY UNIT 2 (A294)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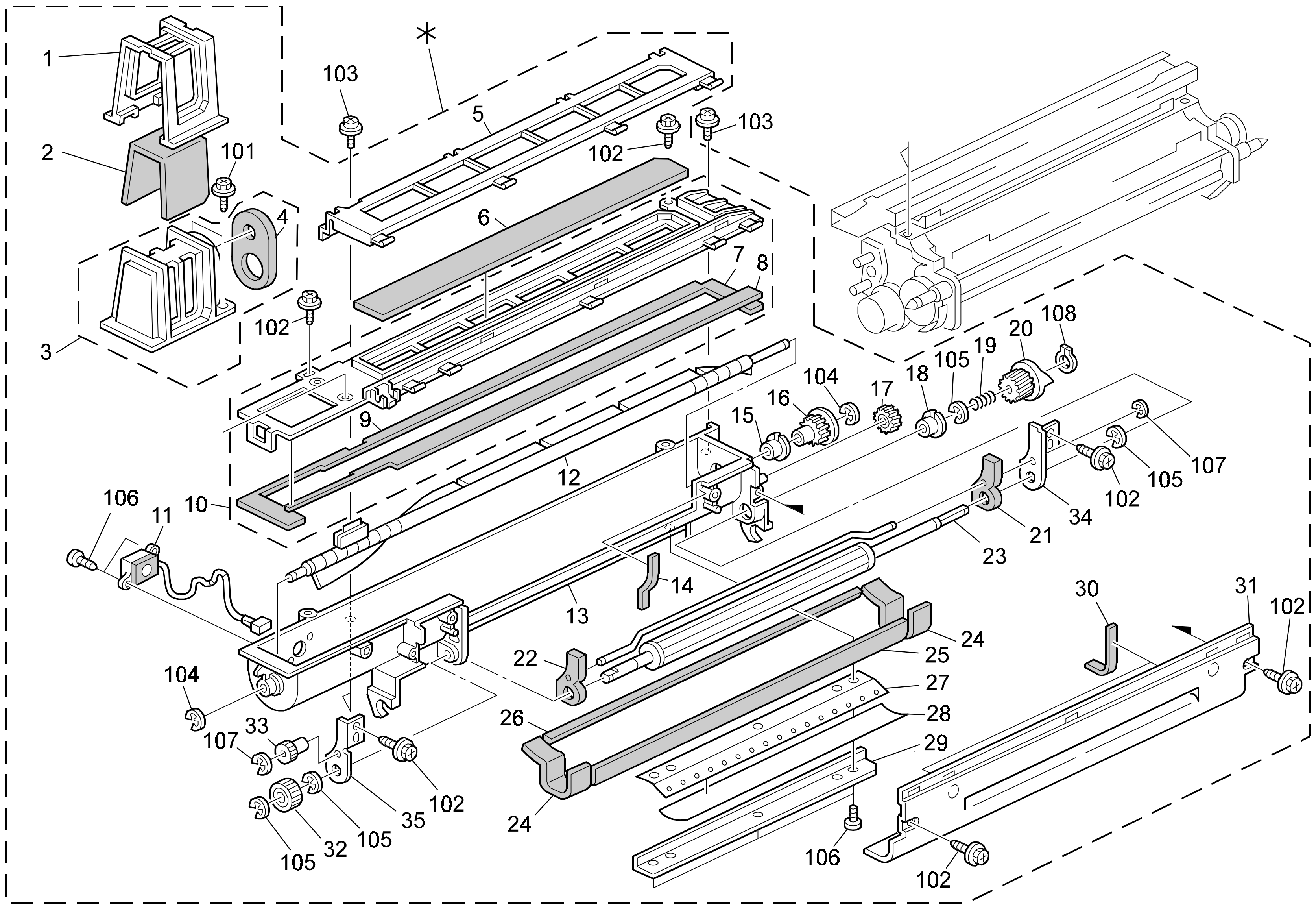
34.TONER SUPPLY UNIT 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 3341	Vibrating Plate Link Bracket	1
2	A294 3354	Rack - 10z	2
3	AA06 3601	Rack Spring	2
4	AA06 3602	Chuck Spring	2
5	A294 3313	Toner Bank Case	1
6	A294 3317	Left Case Seal	1
7	A294 3318	Right Case Seal	1
8	A294 3614	Vibrating Plate Cushion	1
9	AW31 0003	Toner End Sensor	1
10	AA06 3366	Chuck Spring	2
11	A294 3327	Toner Collection Vibration Plate	1
12	A294 3323	Vibration Plate	1
13	A294 3352	Toner Bottle Shaft	2
14	A134 3216	Screw	2
15	A134 3180	Bottle Chuck	2
16	A294 3290	Toner Bank Slider	2
17	AA06 6319	Tortion Spring	1
18	A294 3339	Spring Shaft	1
19	A294 3340	Spring Support Plate	1
20	A294 3334	Toner Bank Agitator	1
21	A294 3333	Agitator Shaft	1
22	A294 3411	Toner Collection Coil	1
23	A294 3321	Long Case Seal	1
24	A294 3322	Short Case Seal	1
25	A294 3337	Vibration Plate Cam	1
26	A294 3336	Cam Shaft	1
27	AB01 2003	Gear - 16Z	1
28	AB01 2004	Gear - 27Z	1
29	A294 3392	Bracket Cover	1
30	AA06 0810	Tension Spring - Vibrating Plate	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0040B	Retaining Ring - M4	
102	0451 3006B	Tapping Screw - M3x6	
103	0450 4008B	Tapping Screw - 4x8	
104	0452 3008B	Tapping Screw - M3x8	

35.TONER HOPPER SECTION (A294)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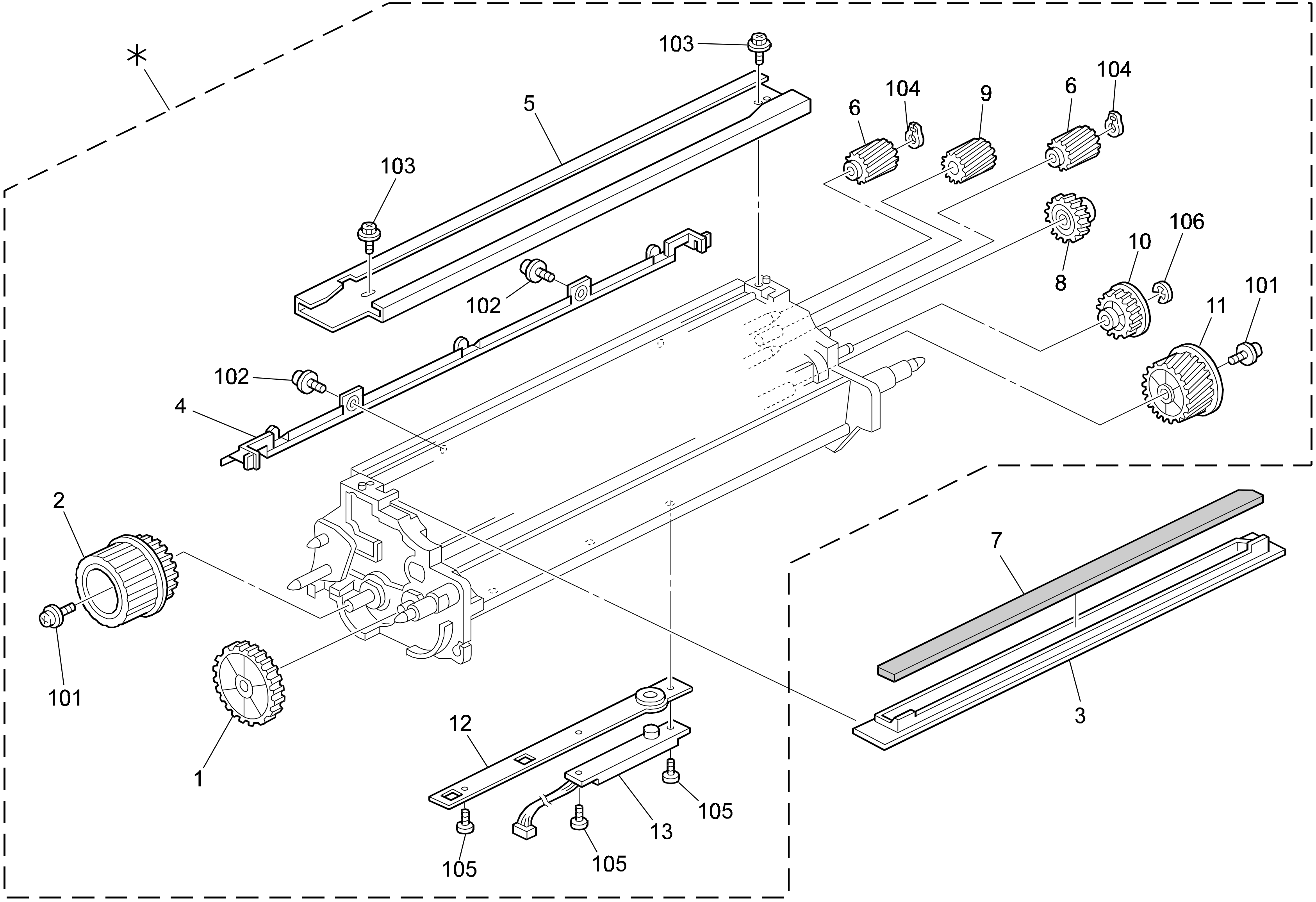
35.TONER HOPPER SECTION (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 3200	Toner Supply Unit	1
1	A294 3263	Front Filter Holder	1
2	**AA01 2114**	**Pressure Release Filter - Front**	**1**
3	A294 3261	Toner Hopper Joint	1
4	A294 3266	Joint Hopper Seal	1
5	A294 3212	Center Filter Holder	1
6	**AA01 2113**	**Pressure Release Filter - Center**	**1**
7	A294 3217	Seal - 12.5x45x3	1
8	A294 3216	Upper Case Seal - Right	1
9	A294 3215	Upper Case Seal - Left	1
10	A294 3210	Upper Toner Hopper Case	1
11	AW31 0003	Toner End Sensor	1
12	A294 3240	Agitator	1
13	A294 3231	Lower Toner Hopper Case	1
14	AA15 1787	Seal - 5x52x2	1
15	A096 3176	Bushing - 6x12x8.5	1
16	AB01 3749	Gear - 15Z	1
17	AB01 3747	Gear - 16Z	1
18	A096 3175	Bushing 8x14x8	1
19	AA06 0291	Spring	1
20	AB01 3748	Joint Gear - 15z	1
21	AA15 1789	Rear Separate Plate Seal	1
22	AA15 1788	Front Separate Plate Seal	1
23	A294 3242	Toner Supply Roller	1
24	AA15 1792	Seal - 3x15x85	2
25	AA15 1793	Seal - 3x35x211	1
26	AA15 1794	Seal - 3x5x322	1
27	A096 3181	Slitter	1
28	AA15 0361	Slitter Cover Seal	1
29	A247 3123	Plate Nut - Slitter	1
30	A294 3252	Seal - 8x68x2	2
31	A294 3251	Right Hopper Case	1
32	AB01 0018	Gear - 34Z	1
33	AB01 0017	Gear - 18Z	1
34	A294 3245	Agitator Rear Holder	1
35	A096 3185	Agitator Front Holder	1
101	0450 3006B	Tapping Screw - M3x6	
102	0450 4008B	Tapping Screw - 4x8	
103	0951 4006B	Philips Screw With Washer - M4x6	
104	0720 0040B	Retaining Ring - M4	
105	0720 0060B	Retaining Ring - M6	
106	0452 3008B	Tapping Screw - M3x8	
107	0720 0020B	Retaining Ring - M2	
108	0727 0060B	Retaining Ring C - 6	

36.DEVELOPMENT UNIT 1(A294)



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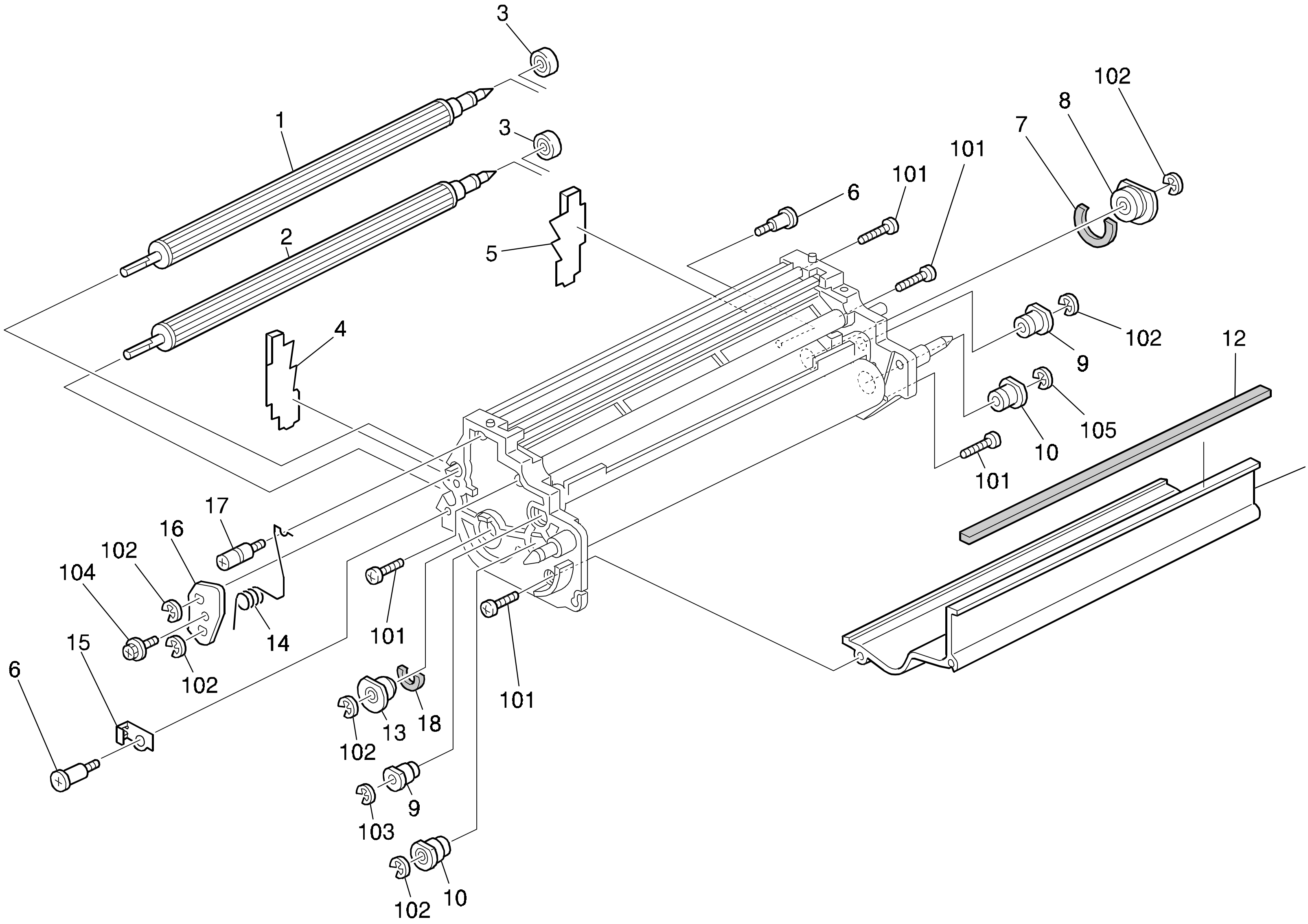
36.DEVELOPMENT UNIT 1(A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 3100	Development Unit	1
1	AB01 3785	Gear - 43Z	1
2	A096 3069	Development Knob	1
3	A096 3141	Development Filter Case	1
4	A229 3091	Entrance Seal	1
5	A096 3104	Development Guide Rail	1
6	A247 3081	Gear - 17Z	2
7	**AA01 2060**	**Development Filter**	**1**
8	AB01 3788	Gear - 23Z	1
9	AB01 3786	Gear - 18Z	1
10	AB01 3790	Gear - 25Z	1
11	A247 3074	Gear - 34Z	1
12	A096 3059	Toner Sensor Guide	1
13	AW23 0006	Toner Density Sensor	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0951 3006B	Philips Screw With Flat Washer - M3x6	
102	0951 4008B	Philips Screw With Washer - M4x8	
103	0450 4008B	Tapping Screw - 4x8	
104	0727 0090E	Retaining Ring C - M9	
105	0313 0050B	Philips Pan Head Screw - M3x5	
106	0720 0030B	Retaining Ring - M3	

37.DEVELOPMENT UNIT 2(A294)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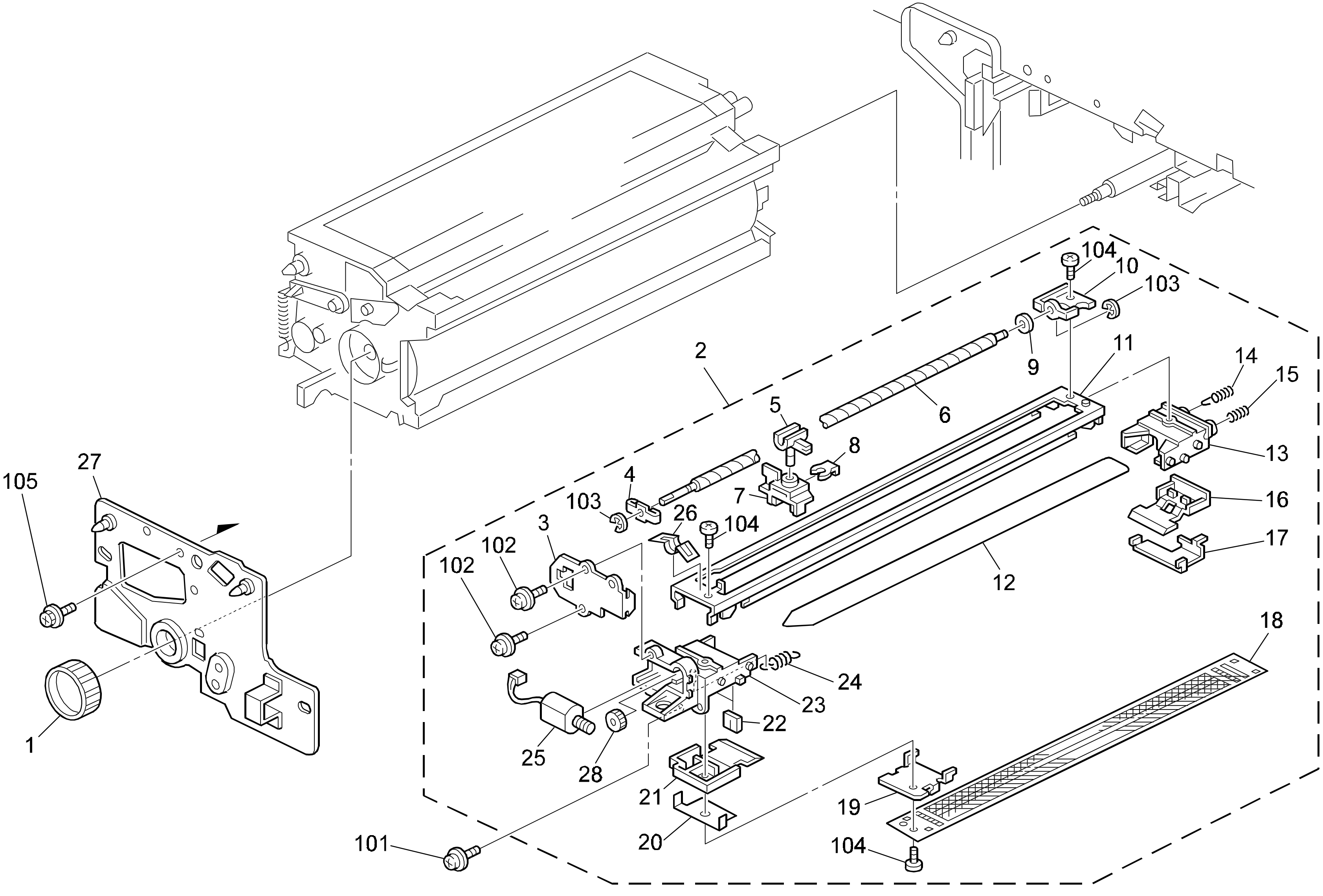
37.DEVELOPMENT UNIT 2(A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 3100	Development Unit	1
1	A294 3131	Upper Development Roller	1
2	A294 3132	Lower Development Roller	1
3	A247 3089	Ball Bearing - 9x17x5	2
4	A294 3161	Front Drum Seal	1
5	A294 3163	Rear Drum Seal	1
6	AA14 3426	Stepped Screw - M4x17	2
7	A294 3147	Seal	1
8	A294 3145	Ball Bearing Case - 8x19x6	1
9	AA08 0152	Bushing - 4x12x13	2
10	A294 3150	Bushing - 6x22x14	2
11	A096 3052	Lower Development Casing	1
12	AA15 1794	Seal - 3x5x322	1
13	A294 3170	Bushing - 6x22x14	1
14	A294 3129	Electrode Torsion Spring	1
15	A294 3126	Casing Electrode	1
16	A247 3080	Adjusting Plate	1
17	5403 2819	Spring Anchor - Reverse Roller	1
18	A294 3173	Seal - M8	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0314 0080B	Philips Pan Head Screw - M4x8	
102	0720 0040B	Retaining Ring - M4	
103	0720 0030B	Retaining Ring - M3	
104	0450 4008B	Tapping Screw - 4x8	
105	0720 0060B	Retaining Ring - M6	

38.PCU 1 (A294)

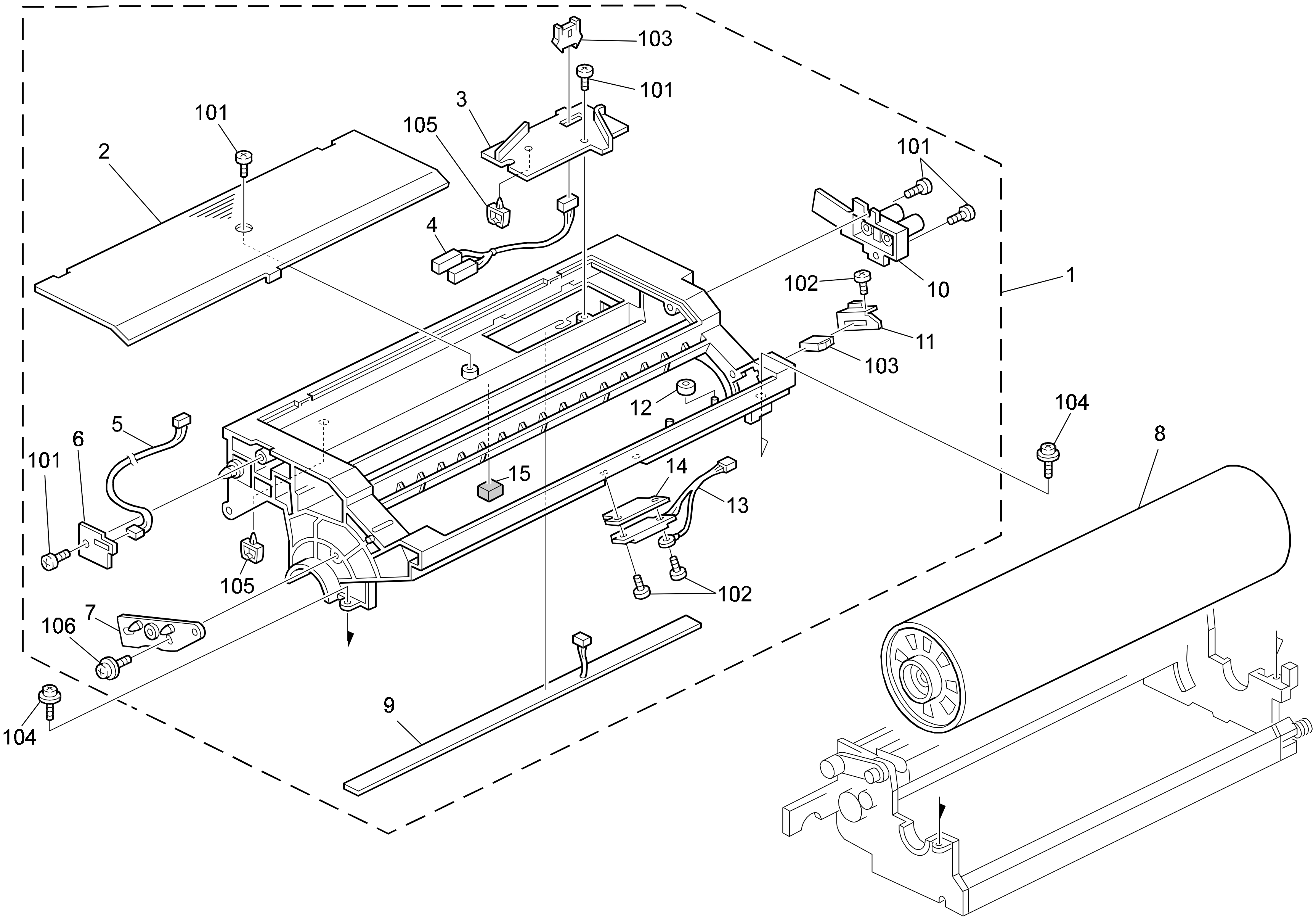


38.PCU 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A096 2330	Drum Shaft Knob	1
2	AD00 4091	Charge Corona Unit	1
3	A096 2053	Cleaner Motor Cover	1
4	AA08 0147	Front Bushing	1
5	A096 2062	Wire Cleaner Slider	1
6	A176 2061	Screw Shaft	1
7	**A096 2063**	**Corona Wire Cleaner**	**1**
8	A096 2065	Slider Ring	1
9	AA16 1105	Cleaner Cushion	1
10	AA08 0148	Rear Bushing	1
11	AD02 3106	Charge Corona Casing	1
12	**AD02 0053**	**Charge Corona Wire**	**1**
13	AD02 2285	Rear End Block	1
14	AA06 3248	Charge Terminal Spring	2
15	AA06 3249	Grid Terminal Spring	1
16	AD02 2307	Cover - Rear End Block	1
17	A096 2051	Rear Grid Anchor	1
18	**A096 2057**	**Charge Corona Grid**	**1**
19	A096 2052	Front Grid Anchor	1
20	A134 2363	Terminal Plate	1
21	AD02 2306	Cover - Front End Block	1
22	AA16 1119	Cushion - Wire	2
23	AD02 2283	Front End Block	1
24	AA06 2284	Pressure Spring	1
25	AX04 0061	Cleaner Motor - DC 0.5w	1
26	A176 2054	Grounding Plate	1
27	A294 2405	Drum Stay	1
28	AB01 0087	Gear - 20Z	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4006B	Tapping Screw - 4x6	
102	0965 3008B	Tapping Screw With Washer - M3x8	
103	0720 0025B	Retaining Ring - M2.5	
104	0971 4006A	Philips Polycarbonate Screw - M4x6	
105	0451 4008B	Philips Tapping Screw - M4x8	

39.PCU 2 (A294)

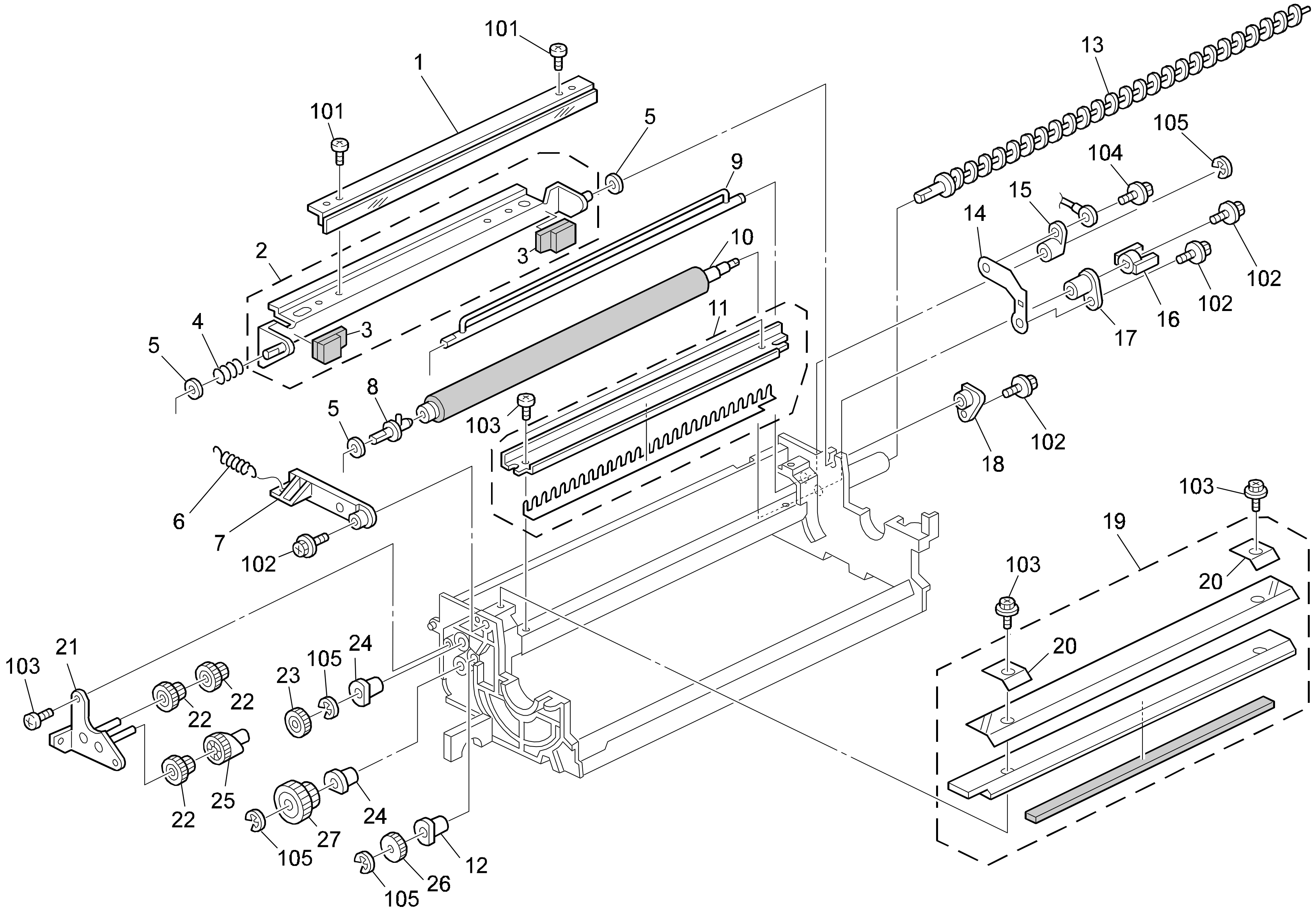


39.PCU 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 2413	Upper Drum Unit	1
2	A176 2260	Upper Unit Cover	1
3	A294 2426	Relay Harness Plate	1
4	A294 5477	Drum Relay Harness	1
5	A096 5442	Corona Cleaner Harness	1
6	A096 2281	Connector Bracket	1
7	A096 2266	Corona Unit Bracket	1
8	A294 9510	OPC Drum	1
9	A096 5320	Quenching Lamp	1
10	A294 2420	Charge Corona Receptacle	1
11	A229 2401	Connector Bracket	1
12	A153 3571	Collar	1
13	AW33 0003	Drum Potential Sensor	1
14	A096 2301	Grounding Plate	1
15	AA15 3085	Inner Case Seal	

Index No.	Part No.	Description	Q'ty Per Assembly
101	0452 3006B	Tapping Screw - M3x6	
102	0453 3006B	Tapping Screw - M3x6	
103	1102 6247	Connector - 4P	
104	0951 4010W	Philips Screw With Flatwasher - M4x10	
105	1105 0229	Clamp	
106	0452 3008B	Tapping Screw - M3x8	

40.PCU 3 (A294)

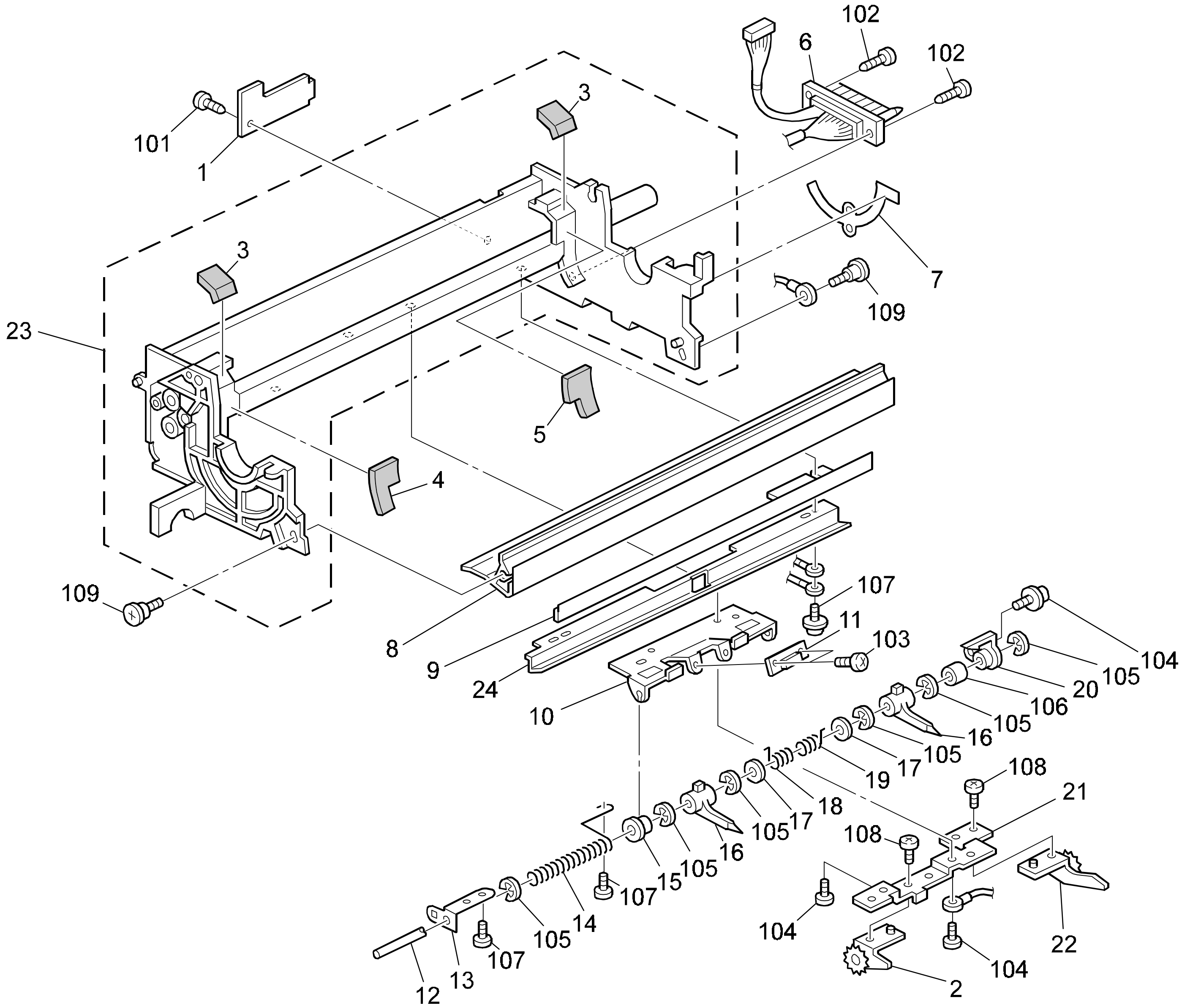


40.PCU 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 3510	Lower Drum Unit	1
1	**AD04 1056**	**Cleaning Blade**	**1**
2	A247 3573	Bracket - Cleaning Blade	1
3	A247 3571	Cleaning Seal	2
4	AA06 3380	Spring - 16mm	1
5	AA13 2024	Spacer - M6	3
6	AA06 3591	Cleaning Blade Spring	1
7	A247 3575	Blade Release Lever	1
8	A096 3586	Cleaning Brush Drive Shaft	1
9	AD03 9057	Cleaning Agitator	1
10	**AD04 2032**	**Cleaning Brush**	**1**
11	A294 3566	Holder - Toner Collection Coil	1
12	AA08 2094	Bushing - Brush Roller	1
13	AD04 3065	Toner Collection Coil	1
14	A176 3527	Grounding Plate	1
15	AA08 2059	Agitator Bushing	1
16	A294 3591	Joint - Cleaning Drive	1
17	AA08 2045	Cleaning Brush Bushing	1
18	AA08 0154	Rear Bushing	1
19	A294 3606	Cleaning Seal - Ass'y	1
20	A229 2371	Cleaning Seal Sheet	2
21	A247 3656	Bracket - Speed Reduction Gear	1
22	A096 3661	Gear - 15/35Z	3
23	AB01 0340	Gear - 30Z	1
24	AA08 2095	Bushing - Toner Collection Coil	2
25	AB01 7288	Cam Gear - 35Z	1
26	A096 3588	Gear - 19Z	1
27	AB01 7296	Gear - 30/47Z	

Index No.	Part No.	Description	Q'ty Per Assembly
101	0314 0040B	Philips Pan Head Screw - M4x4	
102	0951 3006B	Philips Screw With Flat Washer - M3x6	
103	0452 3008B	Tapping Screw - M3x8	
104	0452 3010B	Tapping Bind Screw - M3x10	
105	0720 0040B	Retaining Ring - M4	

41.PCU 4 (A294)

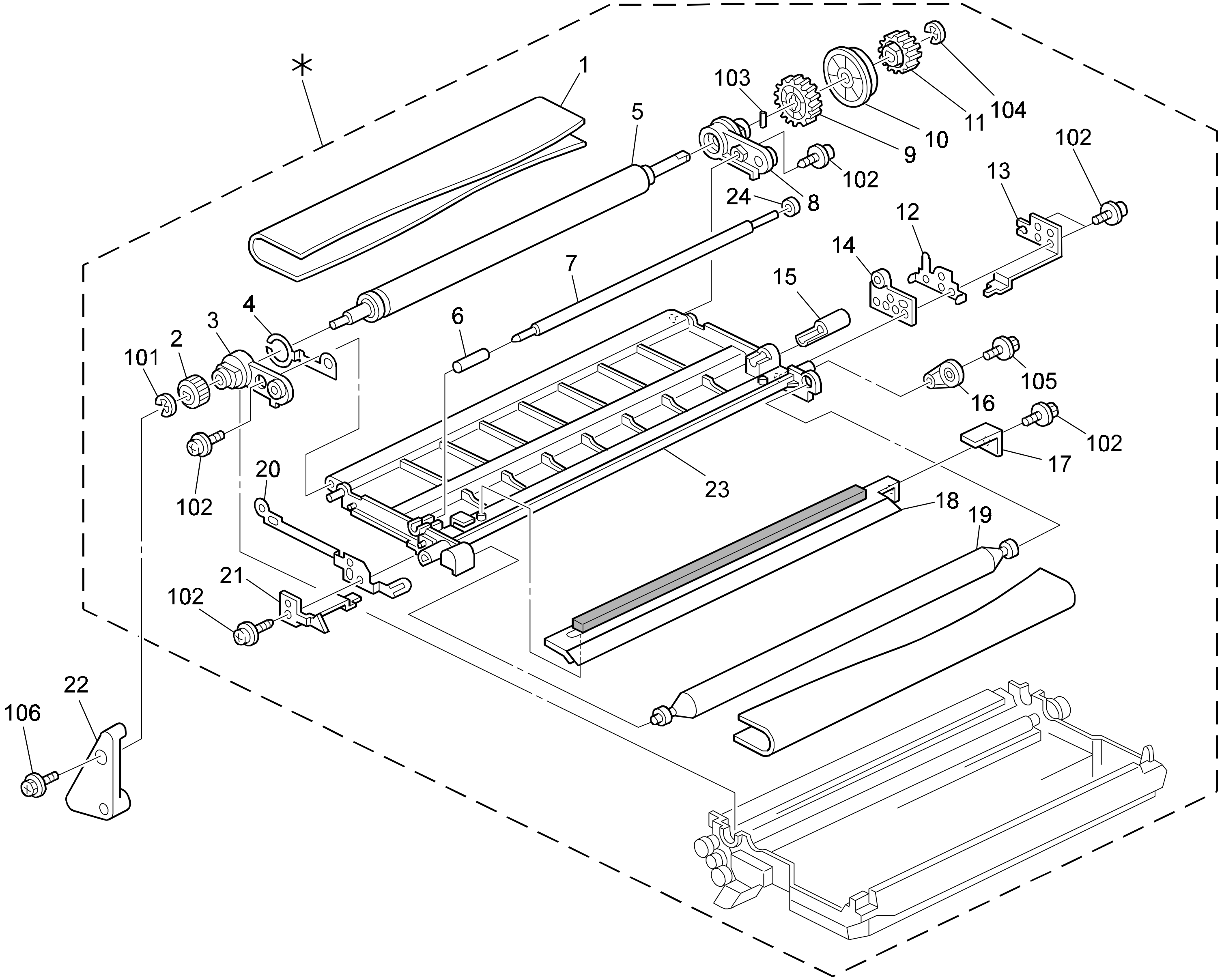


41.PCU 4 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A096 3666	Harness Cover	1
2	A048 2274	Front Transport Guide	1
3	AA15 3085	Inner Case Seal	2
4	AA15 2431	Front Drum Seal	1
5	A134 2392	Rear Drum Seal	1
6	A294 5471	Harness - Drum Unit	1
7	A229 2352	Grounding Plate	1
8	A294 3563	Upper Stay - Transfer Unit	1
9	A096 3621	Entrance Seal	1
10	A096 3642	Pick-off Pawl Bracket	1
11	A134 5251	ID Sensor	1
12	A096 3646	Pick-off Pawl Shaft	1
13	A096 3624	Drum Grounding Plate	1
14	AA06 3384	Pick-off Pawl Shaft Spring	1
15	5324 1658	Bushing- 4x8x4.5mm	1
16	**AD02 5022**	**Pick-off Pawl**	**2**
17	A352 2138	Slide Collar - 0.6x4.5x6	2
18	AA06 6214	Front Pawl Spring	1
19	AA06 6215	Rear Pawl Spring	1
20	AA08 0155	Rear Pawl Bushing	1
21	A097 3644	Transport Guide Bracket	1
22	A048 2277	Rear Transport Guide	1
23	A294 3550	PCU Frame	1
24	A294 3556	Entrance Seal Holder	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0452 3008B	Tapping Screw - M3x8	
102	0452 3010B	Tapping Bind Screw - M3x10	
103	0313 0050B	Philips Pan Head Screw - M3x5	
104	0951 3006B	Philips Screw With Flat Washer - M3x6	
105	0720 0030B	Retaining Ring - M3	
106	0807 3092	Spacer - 4x5x3	
107	0453 3008B	Bind Tapping Screw - M3x8	
108	0452 3006B	Tapping Screw - M3x6	
109	0951 3008B	Philips Screw With Flat Washer - M3x8	

42.TRANSFER BELT UNIT 1 (A294)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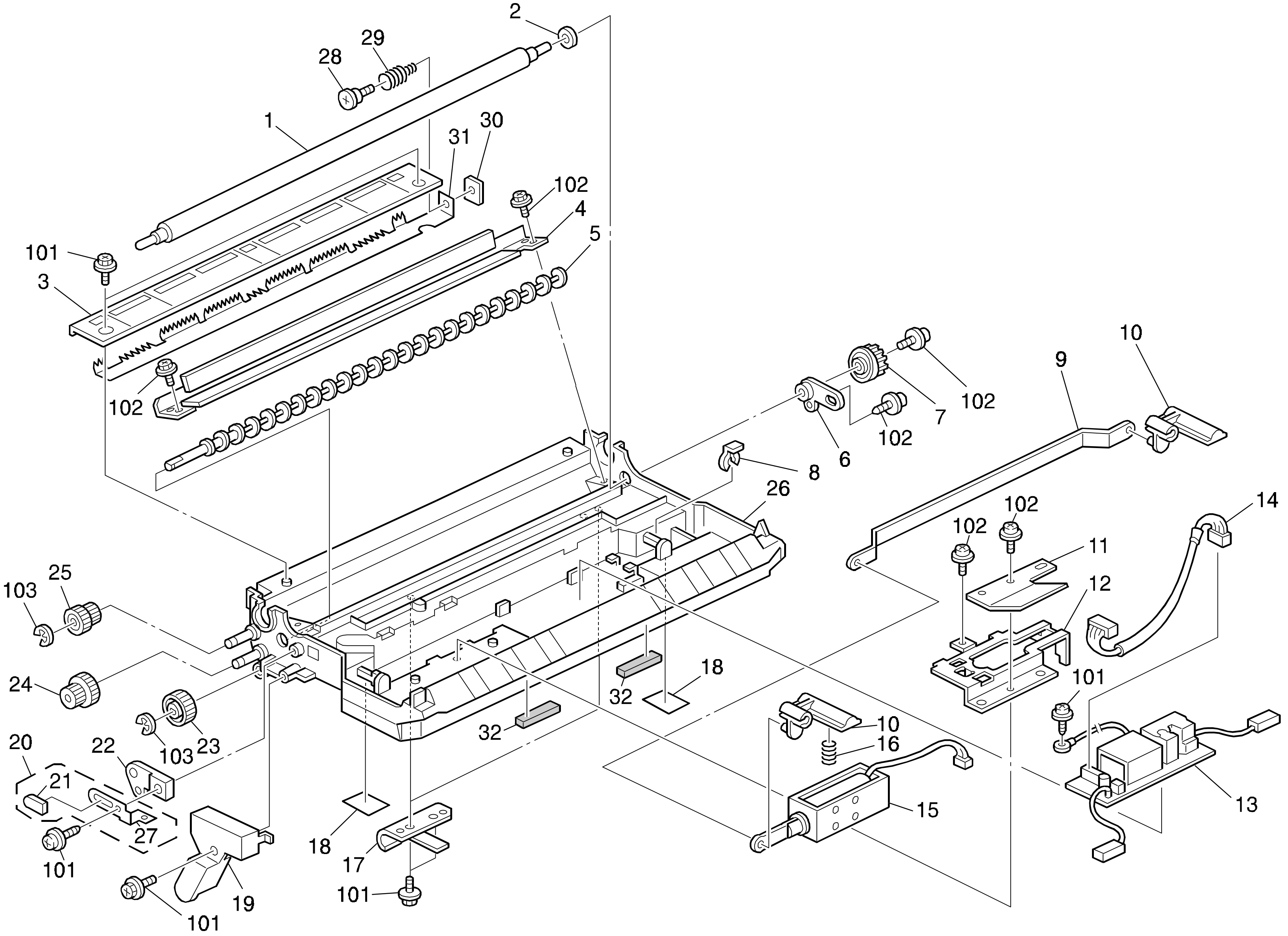
42.TRANSFER BELT UNIT 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 3810	Transfer Belt Unit	1
1	**A229 3852**	**Transfer Belt**	**1**
2	AB01 0333	Gear - 26Z	1
3	A229 3861	Front Arm	1
4	A229 3875	Drive Electrode	1
5	A229 3880	Drive Roller	1
6	A096 3867	Front Bushing - 4.5x6x21	1
7	A294 3878	Back Up Roller	1
8	A229 3862	Rear Arm	1
9	AB01 4104	Cleaning Roller Gear	1
10	A294 3869	Rear Positioning Plate	1
11	A294 3871	Gear - 20Z	1
12	A294 3885	Bias Roller Terminal	1
13	A294 3862	Rear Frame Spring Plate	1
14	A294 3863	Electrode Plate	1
15	A294 3876	Bushing - 0.75x6x23	1
16	A294 3866	Driven Cover	1
17	A294 3864	Electrode Cover	1
18	A294 3872	Transfer Bias Brush	1
19	A229 3865	Transport Driven Roller	1
20	A294 3867	Grounding Plate	1
21	A294 3865	Front Spring Plate	1
22	A294 3915	Belt Unit Support Plate	1
23	A294 3861	Transfer Belt Frame	1
24	A176 3863	Spacer - 4x6x2	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0040B	Retaining Ring - M4	
102	0951 3008B	Philips Screw With Flat Washer - M3x8	
103	0633 0140G	Parallel Pin - 3x14	
104	0720 0060B	Retaining Ring - M6	
105	0450 3008B	Tapping Screw - M3x8	
106	0450 4010B	Tapping Screw - 4x10	

43.TRANSFER BELT UNIT 2 (A294)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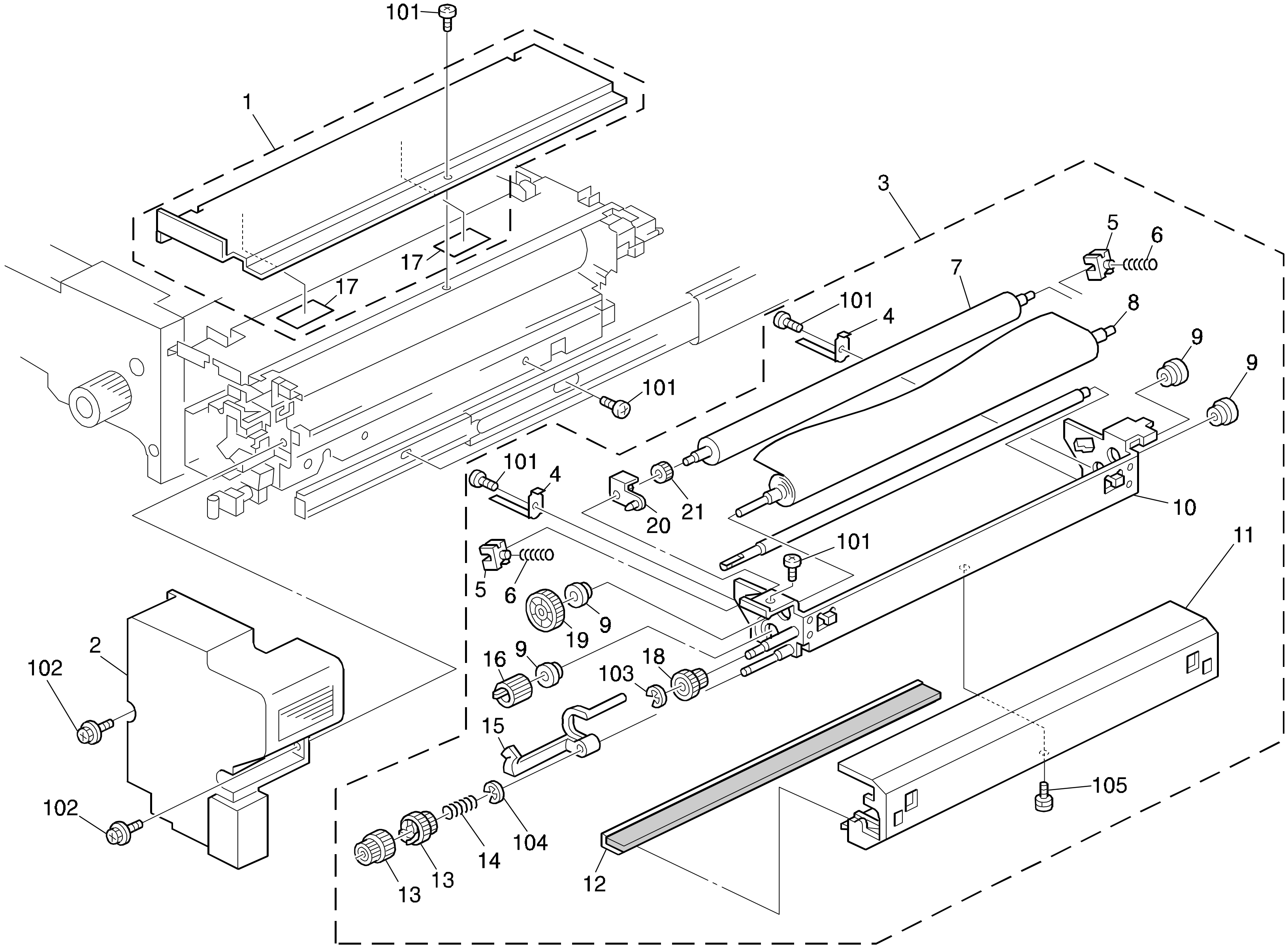
43.TRANSFER BELT UNIT 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A293 3908	Cleaning Roller - Transfer Belt	1
2	AA13 2024	Spacer - M6	1
3	A294 3892	Rear Casing Guide	1
4	**A294 3883**	**Transfer Belt Cleaning Blade**	**1**
5	A294 3880	Toner Collection Coil	1
6	A229 3911	Rear Bushing	1
7	AB01 4093	Cleaning Roller Gear	1
8	5447 2681	Snap Ring	1
9	A096 3916	Belt Lever Arm	1
10	A096 3915	Transfer Belt Lever	2
11	A294 3893	Solenoid Heat Sink	1
12	A096 3922	Soleniod Bracket	1
13	AZ32 0098	Transfer Power Pack	1
14	A294 5480	Transfer Belt Harness	1
15	A294 3890	Transfer Belt Solenoid	1
16	AA06 3485	Compression Spring	1
17	A294 3887	Casing Spring Plate	2
18	A294 3896	Casing Cover	2
19	A294 3889	Electrode Cover	1
20	A229 3909	Bias Terminal	1
21	A229 3919	Danping Insulation - Terminal	1
22	A229 3910	Front Bushing	1
23	AB01 0334	Gear - 34Z	1
24	AB01 0336	Gear - 22/36Z	1
25	A294 3859	Coupled Gear - 32Z/40Z	1
26	A294 3851	Transfer Belt Casing	1
27	A229 3912	Bias Terminal	1
28	H053 1150	Stepped Screw - Locking	1
29	AA06 3310	Guide Plate Spring	1
30	A294 3897	Relay Electrode Plate	1
31	A294 3895	Exit Electrode Plate - Transfer Belt	1
32	A294 1743	Cushion - 5x20x4	2

Index No.	Part No.	Description	Q'ty Per Assembly
101	0450 3008B	Tapping Screw - M3x8	
102	0951 3006B	Philips Screw With Flat Washer - M3x6	
103	0720 0040B	Retaining Ring - M4	

44.FUSING UNIT 1 (A294)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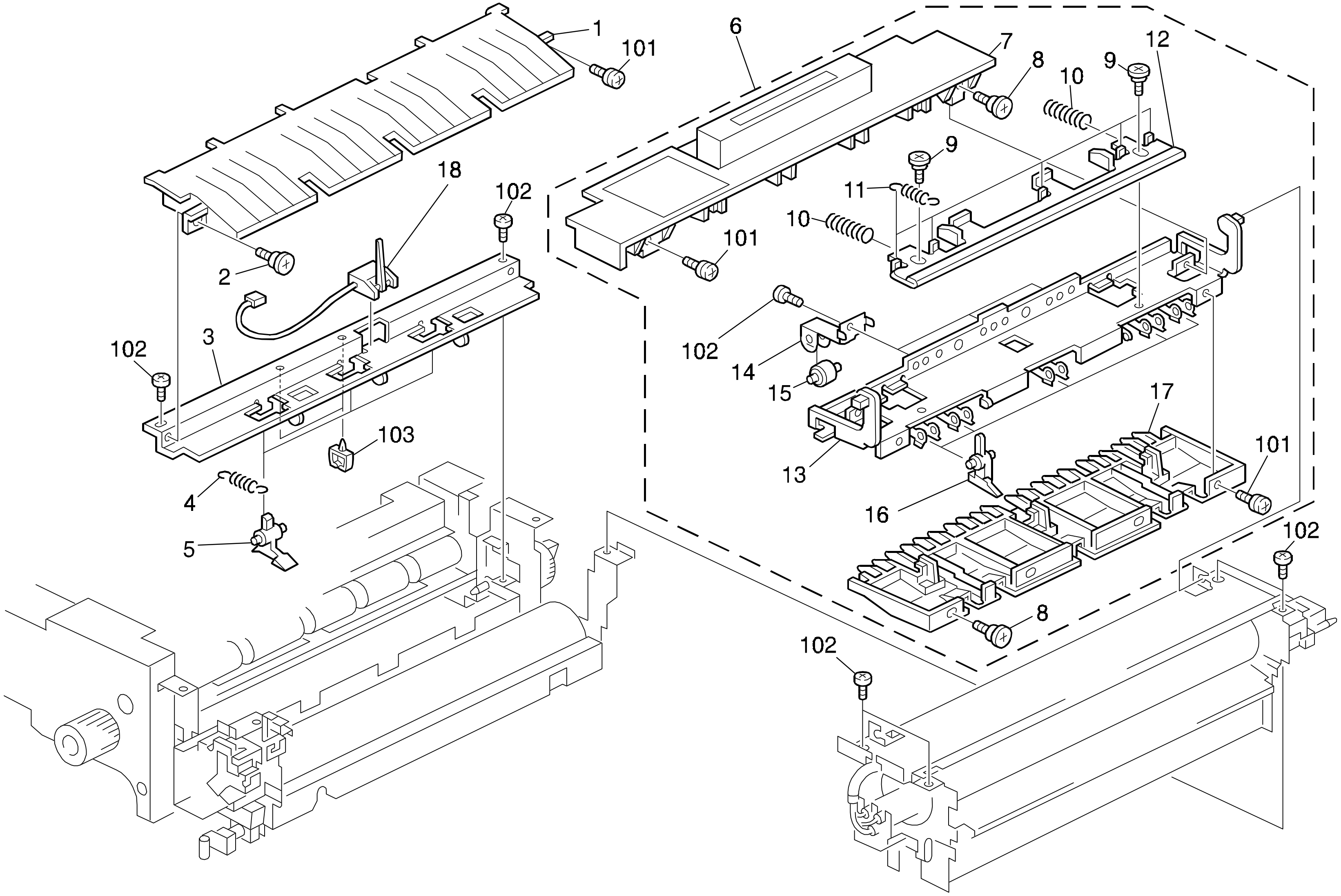
44.FUSING UNIT 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 4089	Fusing Upper Cover	1
2	A294 4198	Fusing Inner Cover	1
3	A294 4140	Oil Supply & Cleaning Web Unit	1
4	A294 4155	Web Spring Plate	2
5	AE03 1026	Bushing - Oil Supply Roller	2
6	AA06 3851	Pressure Spring	2
7	**AE04 0029**	**Web Cleaning Roller**	**1**
8	**AE04 5031**	**Oil Supply & Cleaning Web**	**1**
9	AE03 1032	Bushing - 6x9x6.5	4
10	A294 4136	Web Bracket	1
11	A294 4149	Web Unit Cover	1
12	A294 4147	Oil Collect Bracket	1
13	A294 4158	Coupled Gear - 25Z/32Z	2
14	AA06 3850	Cleaning Pressure Spring	1
15	A294 4151	Web End Feeler	1
16	A294 4156	Gear - 23Z	1
17	A294 4092	Fusing Cover Film	2
18	A294 4171	Coupled Gear - 17Z/32Z	1
19	A294 4146	Gear - 50Z	1
20	A294 4112	Stopper Bracket	1
21	A294 4116	Plate Ratchet	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0354 0060B	Screw - M4X6	
102	0354 0080B	Screw - M4X8	
103	0720 0030B	Retaining Ring - M3	
104	0720 0040B	Retaining Ring - M4	
105	0950 4006B	Screw - M4X6	

45.FUSING UNIT 2 (A294)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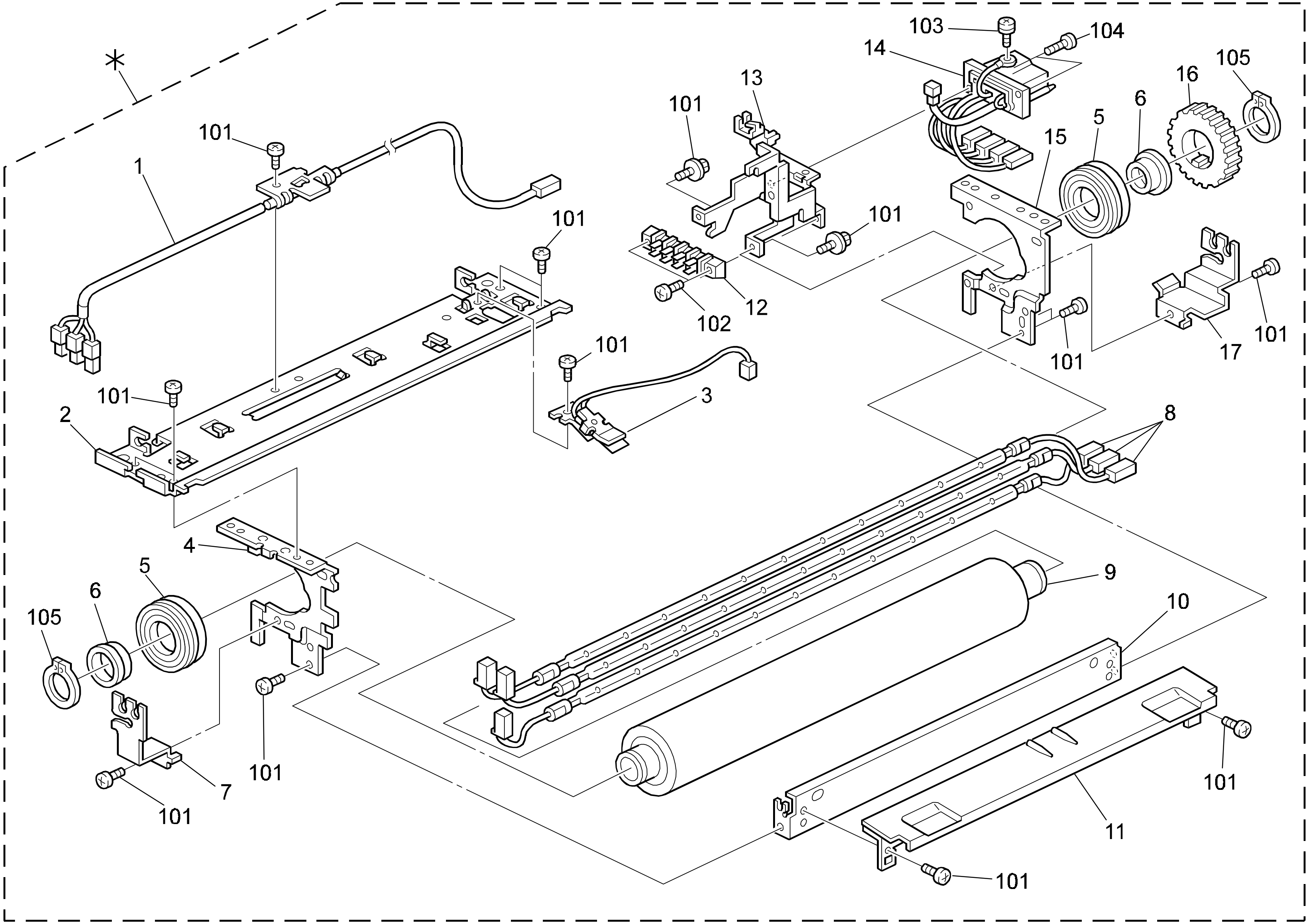
45.FUSING UNIT 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 4206	Fusing Paper Exit Unit - 240V USA	1
*	A294 4207	Fusing & Paper Exit Unit - 230V (EU)	1
1	A294 4076	Lower Exit Guide Plate	1
2	AA14 3037	Development Cover Screw	1
3	A294 4079	Stripper Pawl Bracket	1
4	5446 4235	Spring - Hot Roller Stripper	3
5	AE04 4010	Pressure Roller Stripper	3
6	A294 4159	Fusing Exit Guide	1
7	A294 4160	Left Upper Fusing Cover	1
8	5506 6111	Stepped Screw - M4	2
9	AA14 3037	Development Cover Screw	2
10	AA06 3853	Pressure Spring	2
11	AA06 0539	Stripper Pawl Spring	5
12	A096 4316	Stripper Release Slider	1
13	A294 4165	Exit Guide Bracket	1
14	A294 4164	Roller Spring Plate	3
15	AF04 0561	Fusing Exit Roller - Upper	3
16	**A096 9500**	**Hot Roller Stripper - 5pcs/Set**	**5**
17	A294 4161	Upper Fusing Exit Guide	1
18	AW20 0006	Reed Switch - Exit Sensor	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0950 4006B	Screw - M4X6	
102	0354 0060B	Screw - M4X6	
103	1105 0199	Clamp	

46.FUSING UNIT 3 (A294)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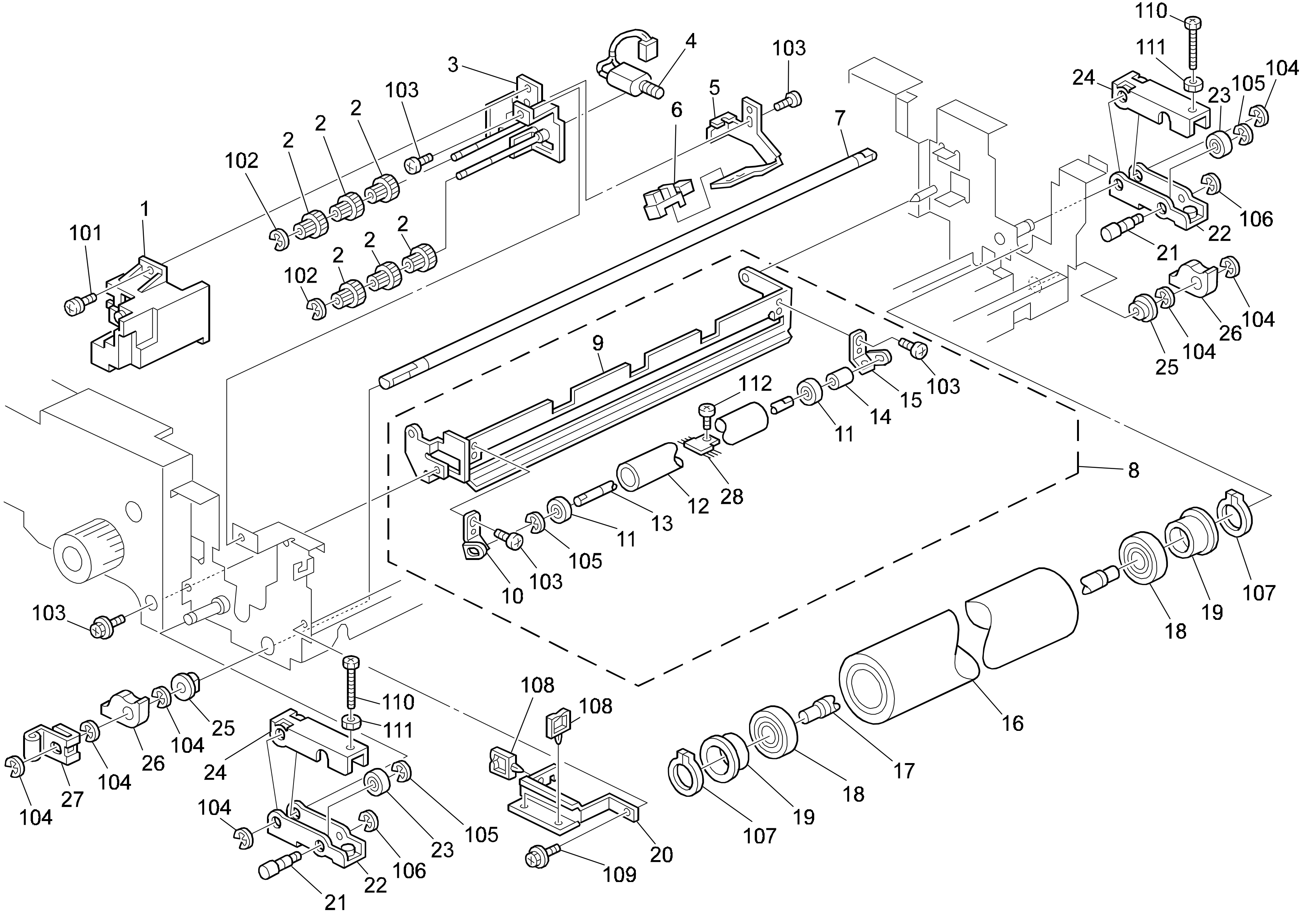
46.FUSING UNIT 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 4066	Hot Roller Unit - 240V USA	1
*	A294 4111	Hot Roller Unit - 230V EUR	1
1	A294 4065	Thermofuse Ass'y	1
2	A294 4055	Upper Fusing Tray	1
3	A229 4131	Thermistor	1
4	A294 4053	Front Fusing Plate	1
5	AE03 0031	Ball Bearing - 40x62x12	2
6	AE03 2021	Bushing - 34.3x39.9x15.5	2
7	A294 4056	Front Heater Holder	1
8	AX43 0052	Fusing Lamp - 230V/530W	3
9	**AE01 1049**	**Hot Roller**	**1**
10	A294 4059	Right Lower Fusing Stay	1
11	A294 4195	Fusing Entrance Guide - LT	1
11	A294 4095	Fusing Entrance Guide - A4	1
12	A257 4105	Terminal - 4p	1
13	A294 4179	Fusing Harness Bracket	1
14	A294 5475	Fusing Harness	1
15	A294 4054	Rear Fusing Plate	1
16	A294 4061	Gear - 67Z	1
17	A294 4057	Rear Heater Holder	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0354 0060B	Screw - M4X6	
102	0314 0120B	Philips Pan Head Screw - M4x12	
103	0950 4006B	Screw - M4X6	
104	0314 0080B	Philips Pan Head Screw - M4x8	
105	0805 0098	Ring - M35	

47.FUSING UNIT 4 (A294)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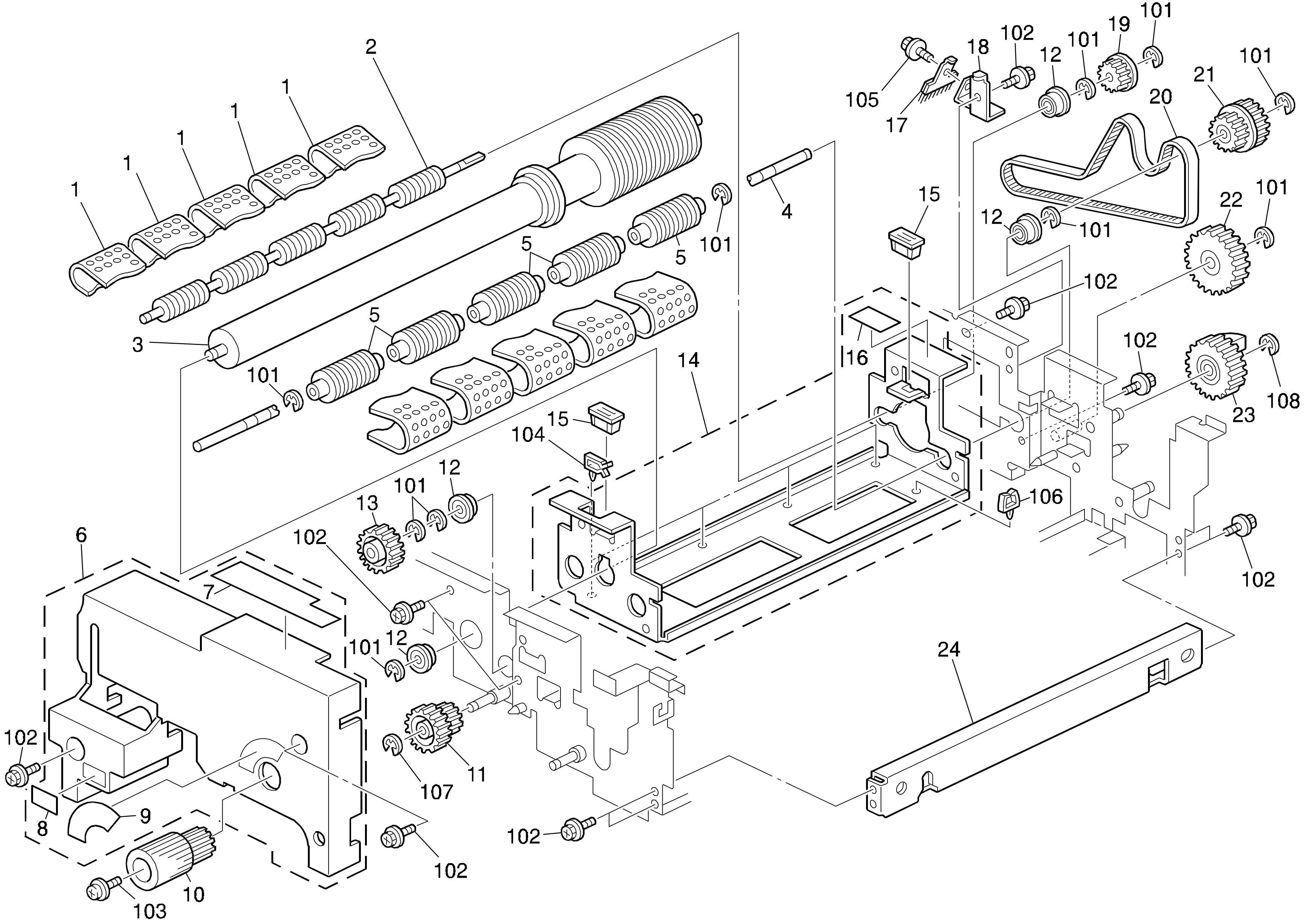
47.FUSING UNIT 4 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 4176	Right Front Case	1
2	A294 4171	Coupled Gear - 17Z/32Z	6
3	A294 4172	Drive Bracket	1
4	AX04 0061	Cleaner Motor - DC 0.5W	1
5	A294 4152	Sensor Bracket	1
6	AW02 0056	Photointerruptor - EE-SX4235A-P1	1
7	A294 4186	Pressure Shaft	1
8	A294 4070	Cleaning Roller Unit	1
9	A294 4072	Cleaning Roller Bracket	1
10	A097 4126	Left Holder	1
11	AE03 0035	Ball Bearing - 6x16x5	2
12	**AE04 2042**	**Pressure Roller Cleaning Roller**	**1**
13	A294 4075	Cleaning Roller Shaft	1
14	AA13 2209	Spacer - 8x10x13.5	1
15	A097 4129	Right Holder	1
16	**AE02 0087**	**Pressure Roller**	**1**
17	A294 4135	Pressure Roller Shaft	1
18	AE03 0032	Ball Bearing - 25x52x15	2
19	AE03 2022	Bushing - 20x25x18	2
20	A294 4190	Front Bracket	1
21	A294 4106	Pressure Shaft	2
22	A294 4107	Lower Pressure Lever	2
23	AE03 0035	Ball Bearing - 6x16x5	2
24	A294 4103	Upper Pressure Lever	2
25	5053 0419	Bushing - 10mm	2
26	A079 4097	Pressure Cam	2
27	A294 4185	Pressure Lever Support Plate	1
28	AA12 0098	Antistatic Brush - Cleaning Roller	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0950 4006B	Screw - M4X6	
102	0720 0030B	Retaining Ring - M3	
103	0354 0060B	Screw - M4X6	
104	0720 0080B	Retaining Ring - M8	
105	0720 0060B	Retaining Ring - M6	
106	0720 0040B	Retaining Ring - M4	
107	0725 0200E	Retaining Ring C - M20	
108	1105 0199	Clamp	
109	0451 4008B	Philips Tapping Screw - M4x8	
110	0585 0351B	Hexagonal Head Bolt - M5x35	
111	0710 0050B	Hexagon Nut - M5	
112	0353 0060B	Philips Pan Head Screw - M3x6	

48.PAPER EXIT SECTION 1 (A294)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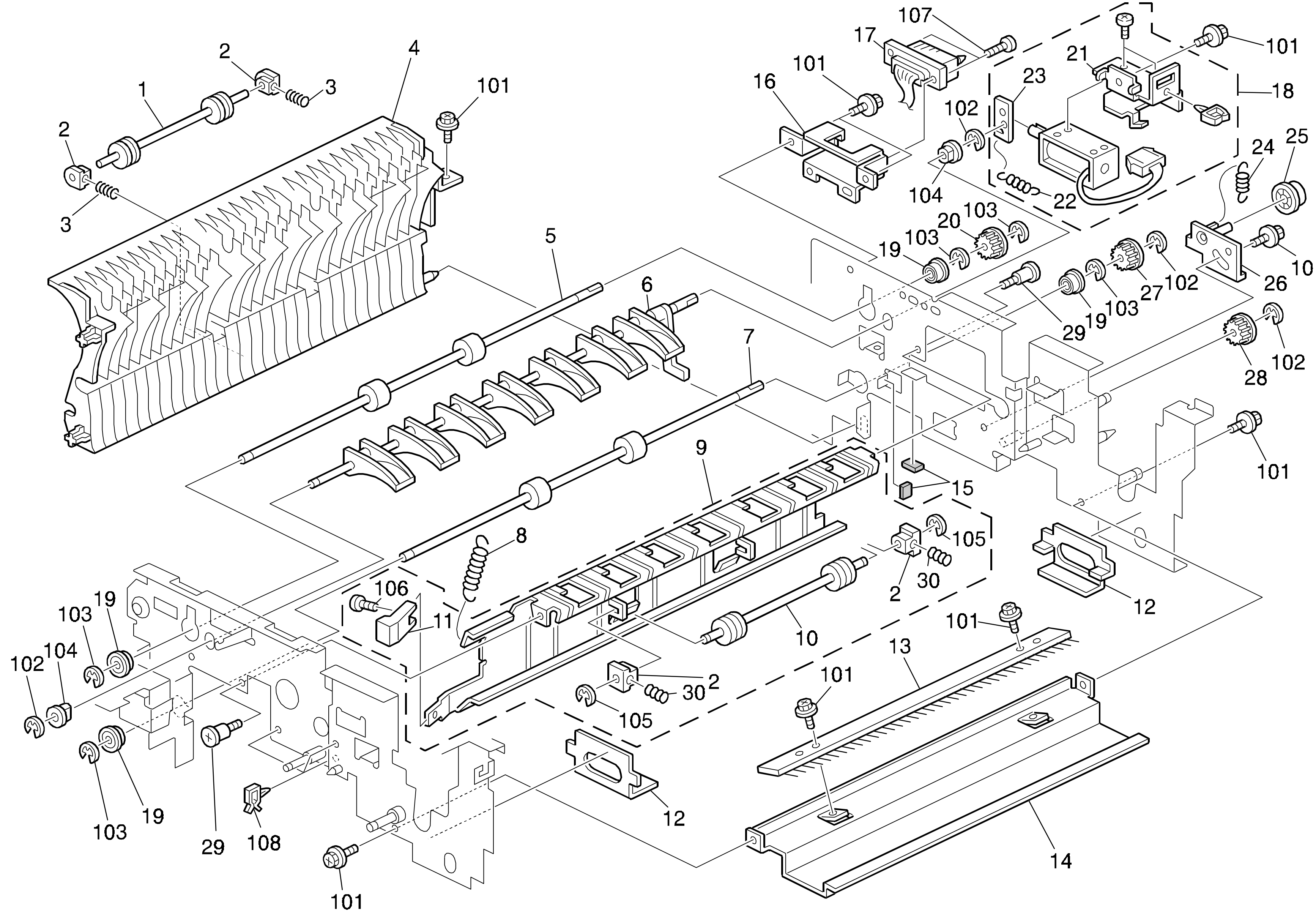
48.PAPER EXIT SECTION 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 4253	Transport Belt	5
2	AF02 2115	Cooling Exit Roller	1
3	A294 4252	Paper Cooling Roller	1
4	AA14 0723	Cooling Roller Shaft	1
5	AF02 2125	Cooling Entrance Roller	5
6	A294 4387	Inner Cover - Paper Exit	1
7	AA00 0208	High Temperature Decal - Large	1
8	AA00 1416	Decal - D5	1
9	AA00 1414	Decal - D1	1
10	AG05 0067	Knob - Transport Roller	1
11	AB01 3780	Gear	1
12	A232 3566	Ball Bearing - 8x16x5	4
13	AB01 4152	Gear - 32Z	1
14	A294 4267	Paper Cooling Stay	1
15	AA02 1031	Magnetic Catch	2
16	AA00 0207	High Temperature Decal - Small	1
17	AA12 0097	Antistatic Brush	1
18	A294 4336	Brush Bracket	1
19	AB03 0081	Pulley - 20Z	1
20	A294 4322	Timing Belt - 561P3M6	1
21	AB01 4146	Gear - 17Z	1
22	AB01 4147	Gear - 43Z	1
23	AB01 3587	Gear - 41Z	1
24	A294 4073	Right Lower Stay	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0060B	Retaining Ring - M6	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	0951 4008B	Philips Screw With Washer - M4x8	
104	1105 0087	Clamp	
105	0451 3006B	Tapping Screw - M3x6	
106	1105 0199	Clamp	
107	0720 0040B	Retaining Ring - M4	
108	0720 0080E	Retaining Ring - M8	

49.PAPER EXIT SECTION 2 (A294)



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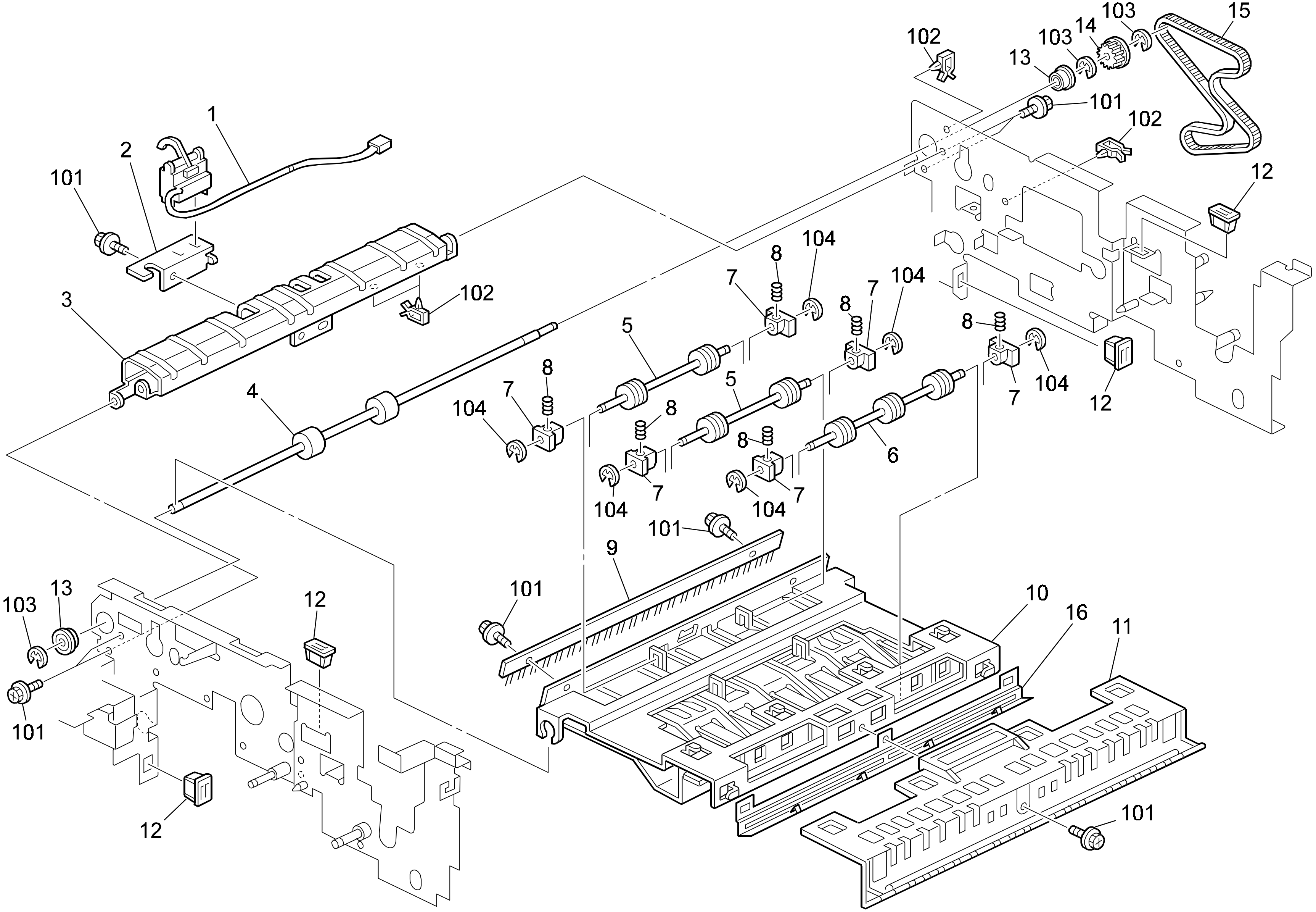
49.PAPER EXIT SECTION 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AF02 2104	Exit Roller - Driven	1
2	AA08 0034	Bushing - 4x5x7	4
3	5205 4527	Spring - Exit	2
4	A294 4287	Inverter Middle Guide Plate	1
5	AF02 0491	Inverter Entrance Roller	1
6	AF02 5039	Inverter Junction Pawl	1
7	AF02 0492	Exit Drive Roller	1
8	5442 1890	Spring - Wire Tightener	1
9	A294 4272	Inverter Guide Plate	1
10	AF02 2117	Driven Transport Roller	1
11	AG05 1141	Release Lever	1
12	AE04 5033	Felt	2
13	AA12 0091	Antistatic Brush	1
14	A294 4385	Fusing Bottom Cover	1
15	A294 4665	Cushion - 6x6x2	2
16	A294 4381	Connector Bracket	1
17	A294 5476	Exit Unit Harness	1
18	A294 4279	Inverter Junction Solenoid	1
19	A232 3566	Ball Bearing - 8x16x5	4
20	AB03 0081	Pulley - 20Z	4
21	A294 4280	Solenoid Bracket	1
22	AA06 0262	Spring	1
23	A294 4281	Inverter Lever	1
24	A422 1219	Pressure Lever Spring	1
25	AB03 0310	Tightener Pulley	1
26	A294 4326	Right Tightener	1
27	AB03 0650	Pulley - 20Z	1
28	AB03 0674	Pulley - 20Z	1
29	5203 2679	Pinion Tightening Screw - M4x5	2
30	5887 4157	Spring - Exit Roller	2

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0720 0040B	Retaining Ring - M4	
103	0720 0060B	Retaining Ring - M6	
104	0805 3384	Bushing - 5mm	
105	0720 0030B	Retaining Ring - M3	
106	0313 0040B	Philips Pan Head Screw - M3x4	
107	0453 3008B	Bind Tapping Screw - M3x8	
108	1105 0087	Clamp	

50.PAPER EXIT SECTION 3 (A294)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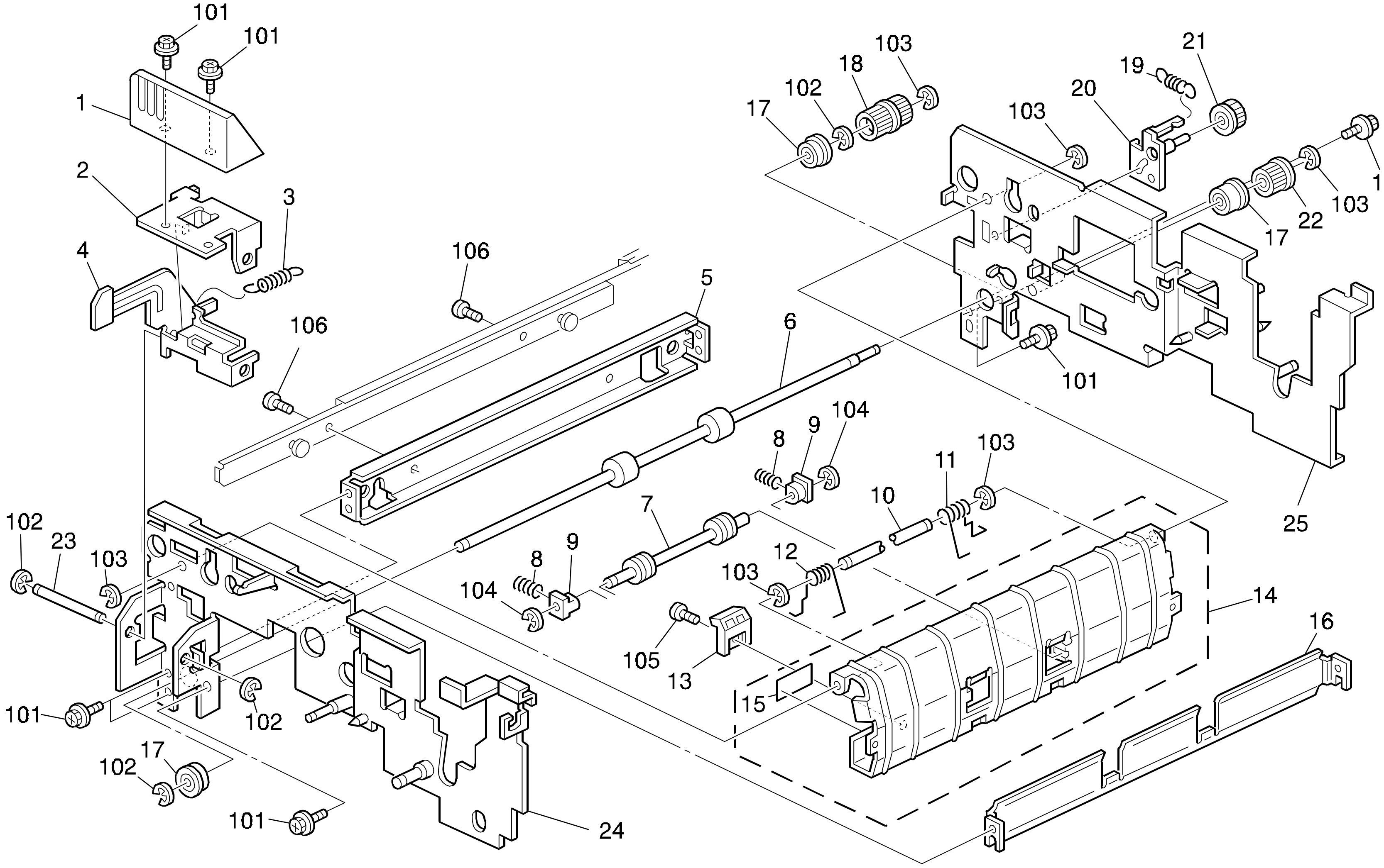
50.PAPER EXIT SECTION 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AW02 0057	Paper Exit Sensor	1
2	A294 4308	Exit Sensor Braket	1
3	A294 4309	Lower Exit Guide	1
4	AF02 0493	Inverter Exit Roller	1
5	AF02 2117	Driven Transport Roller	2
6	AF02 2114	Duplex Driven Roller	1
7	AA08 0034	Bushing - 4x5x7	6
8	5205 4527	Spring - Exit	6
9	AA12 0027	Antistatic Brush	1
10	A294 4301	Upper Guide Plate - Exit	1
11	A294 4401	Entrance Guide	1
12	AA02 1031	Magnetic Catch	4
13	A232 3566	Ball Bearing - 8x16x5	2
14	AB03 0081	Pulley - 20Z	1
15	A294 4323	Timing Belt- B60DS3M480	1
16	A294 4403	Support Guide - Entrance Cooling	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	1105 0087	Clamp	
103	0720 0060B	Retaining Ring - M6	
104	0720 0030B	Retaining Ring - M3	

51.PAPER EXIT SECTION 4 (A294)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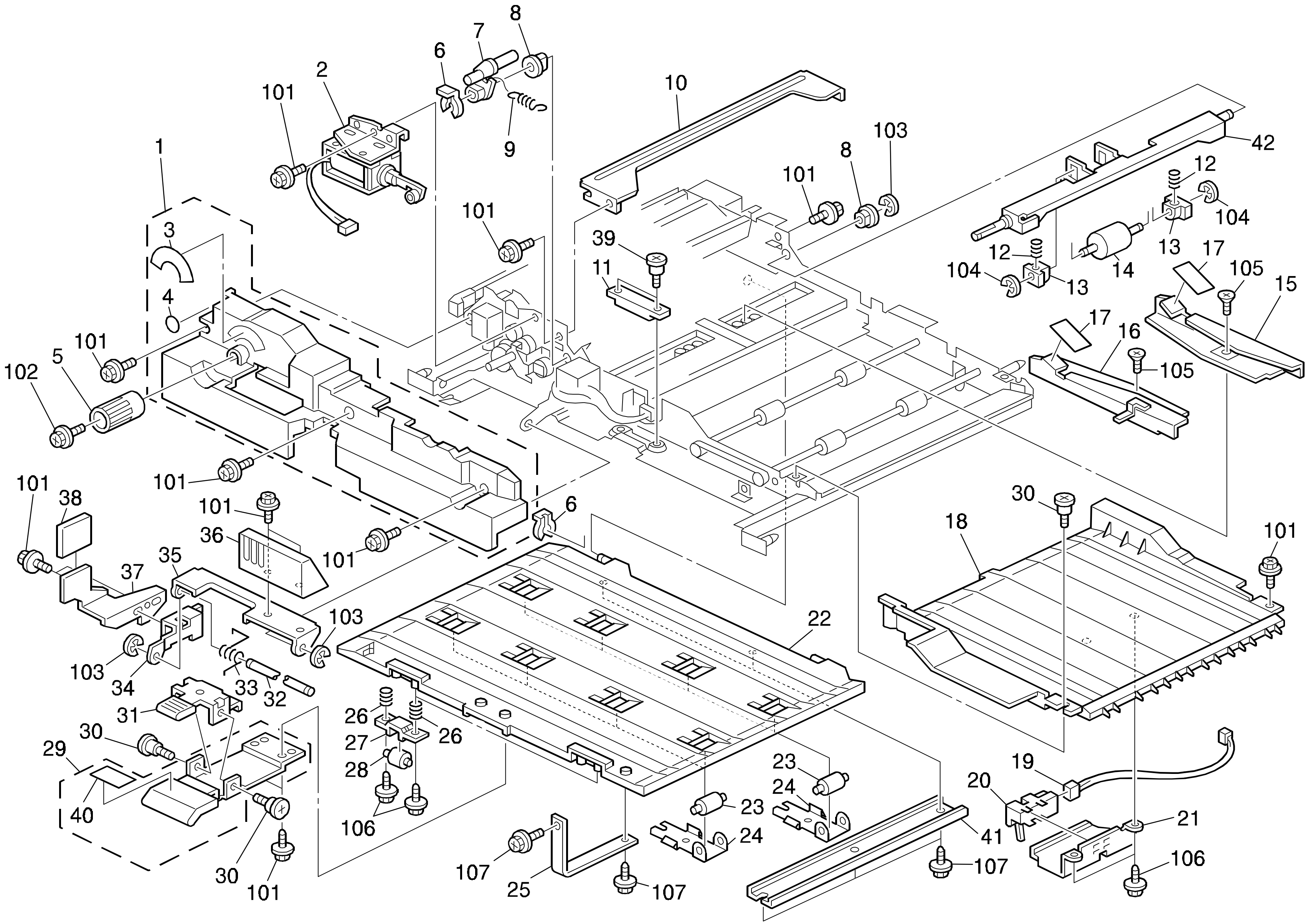
51.PAPER EXIT SECTION 4 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 4347	Release Lever	1
2	A294 4346	Lever Bracket	1
3	5215 4121	Spring - Oil Blade	1
4	A294 4349	Lock Lever	1
5	A294 4382	Left Lower Stay	1
6	AF02 0490	Inverter Relay Roller	1
7	AF02 2117	Driven Transport Roller	1
8	5887 4157	Spring - Exit Roller	2
9	AA08 0034	Bushing - 4X5X7	2
10	AA14 0724	Pivot Shaft	1
11	AA06 6321	Rear Guide Plate Spring	1
12	AA06 6322	Front Guide Plate Spring	1
13	AG05 1141	Release Lever	1
14	A294 4294	Exit Guide Plate	1
15	AA00 1417	Decal - D6	1
16	A294 4289	Relay Guide Plate	1
17	A232 3566	Ball Bearing - 8x16x5	3
18	AB03 0651	Pulley - 20Z	1
19	A422 1219	Pressure Lever Spring	1
20	A294 4331	Left Tightner	1
21	AB03 0674	Pulley - 20Z	1
22	AB03 0081	Pulley - 20Z	1
23	AA14 8594	Lever Shaft	1
24	A294 4342	Front Side Plate - Fusing Exit	1
25	A294 4311	Rear Side Plate - Fusing Exit	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0720 0060B	Retaining Ring - M6	
103	0720 0040B	Retaining Ring - M4	
104	0720 0030B	Retaining Ring - M3	
105	0313 0040B	Philips Pan Head Screw - M3x4	
106	0314 0060B	Philips Pan Head Screw - M4x6	

52.DUPLEX UNIT 1 (A294)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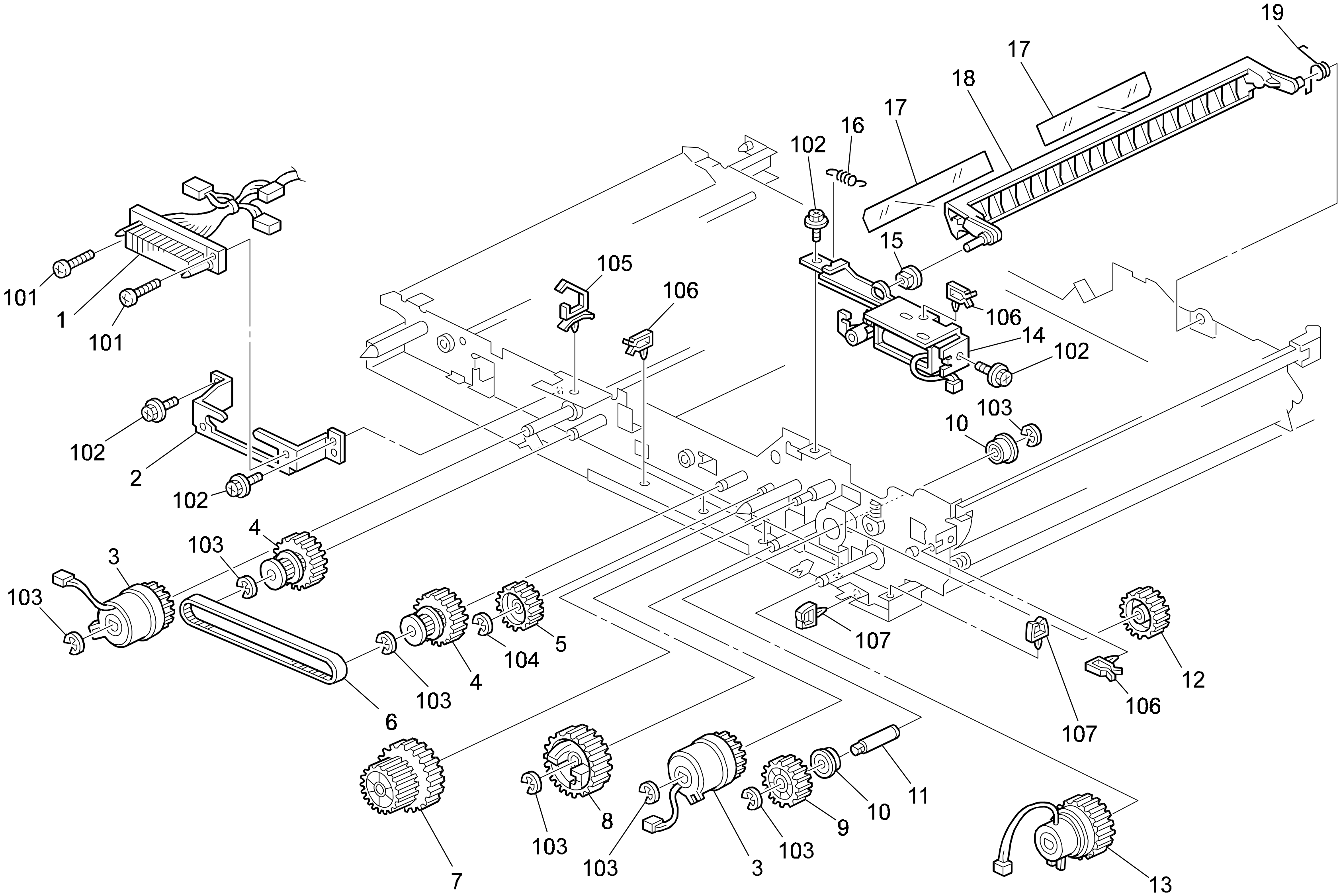
52.DUPLEX UNIT 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 4500	Duplex Unit	1
1	A294 4892	Duplex Inner Cover	1
2	A294 4761	Reverse Roller Solenoid	1
3	AA00 1408	Duplex Knob Decal	1
4	AA00 1409	Decal - Z4	1
5	A079 2861	Knob - Transport Roller	1
6	5447 2681	Snap Ring	1
7	A294 4754	Roller Lever	1
8	AA08 2046	Bushing - 6x12x6	2
9	AA06 0806	Spring	1
10	A294 4836	Upper Duplex Stay	1
11	AA02 1025	Magnet Catch	1
12	AA06 3580	Compression Spring	2
13	AA08 0034	Bushing - 4x5x7	2
14	AF02 0484	Driven Reverse Roller	1
15	A294 4701	Rear Jogger Fence	1
16	A294 4705	Front Jogger Fence	1
17	A294 4708	Guide Seal - 19x45	2
18	A294 4742	Right Duplex Table	1
19	A229 5442	Duplex Connectiong Harness	1
20	AW02 0102	Photointerruptor	1
21	A096 4732	Right Sensor Bracket	1
22	A294 4851	Guide Plate	1
23	AF02 2077	Driven Roller	8
24	A294 4852	Plate Spring	8
25	A096 4928	Guide Plate Band	1
26	AA06 3581	Compression Spring	4
27	A229 4727	Guide Plate Pressure Holder	2
28	AF02 2067	Guide Stopper Roller	2
29	A294 4854	Guide Plate Lever	1
30	AA14 3307	Stepped Screw - M3	3
31	A096 4933	Guide Plate Lever Hook	1
32	A294 4841	Release Lever Shaft	1
33	AA06 6223	Grip Spring	1
34	A294 4843	Lock Arm	1

Index No.	Part No.	Description	Q'ty Per Assembly
35	A294 4842	Release Bracket	1
36	A294 4844	Release Lever	1
37	A294 4866	Lock Lever	1
38	A229 4813	Arm Pad	1
39	AA14 3183	Stepped Screw	2
40	AA00 1407	Guide Lever Decal	1
41	A294 4855	Lower Transport Guide Stay	2
42	A294 4751	Reverse Roller Bracket	1
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0951 4008B	Philips Screw With Washer - M4x8	
103	0720 0040B	Retaining Ring - M4	
104	0720 0030B	Retaining Ring - M3	
105	0324 0060B	Philips Sunken Head Screw - M4x6	
106	0450 3008B	Tapping Screw - M3x8	
107	0450 4010B	Tapping Screw - 4x10	

53.DUPLEX UNIT 2 (A294)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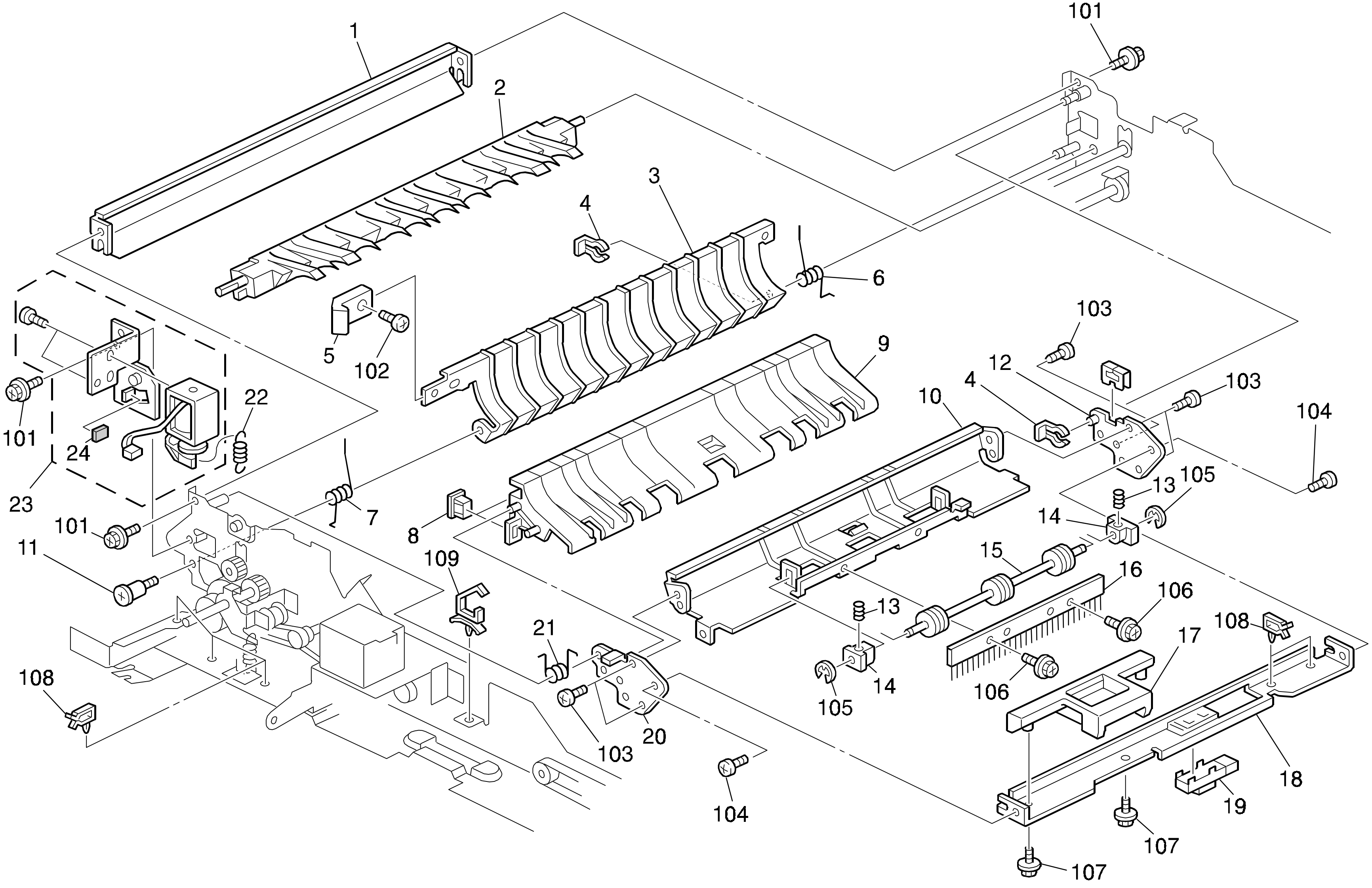
53.DUPLEX UNIT 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 5474	Duplex Harness	1
2	A294 4861	Duplex Unit Drawer Bracket	1
3	AX20 0172	Electro Clutch	2
4	AB01 7509	Coupled Gear - 15Z/30Z	2
5	GB01 3035	Gear - 28Z	1
6	AA04 3278	Timing Belt - B60S3M339	1
7	AB01 7508	Coupled Gear - 26Z/40Z	1
8	AB01 7510	Gear - 36Z	1
9	AB01 4138	Gear - 23Z	1
10	A232 3566	Ball Bearing - 8x16x5	2
11	A294 4774	Relay Gear Shaft	1
12	AB01 4137	Gear - 26Z	1
13	AX20 0171	Duplex Roller Clutch	1
14	A294 4822	Paper Guide Solenoid	1
15	AA08 2046	Bushing - 6x12x6	1
16	AA06 0807	Paper Guide Spring	1
17	A294 4827	Paper Guide Seal	2
18	A294 4821	Entrance Guide	1
19	AA06 6332	Paper Guide Spring	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0313 0080B	Philips Pan Head Screw - M3x8	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	0720 0060B	Retaining Ring - M6	
104	0720 0040B	Retaining Ring - M4	
105	1105 0291	Harness Clamp - LWS-3S	
106	1105 0267	Harness Clamp - YMC-10-0	
107	1105 0199	Clamp	

54.DUPLEX UNIT 3 (A294)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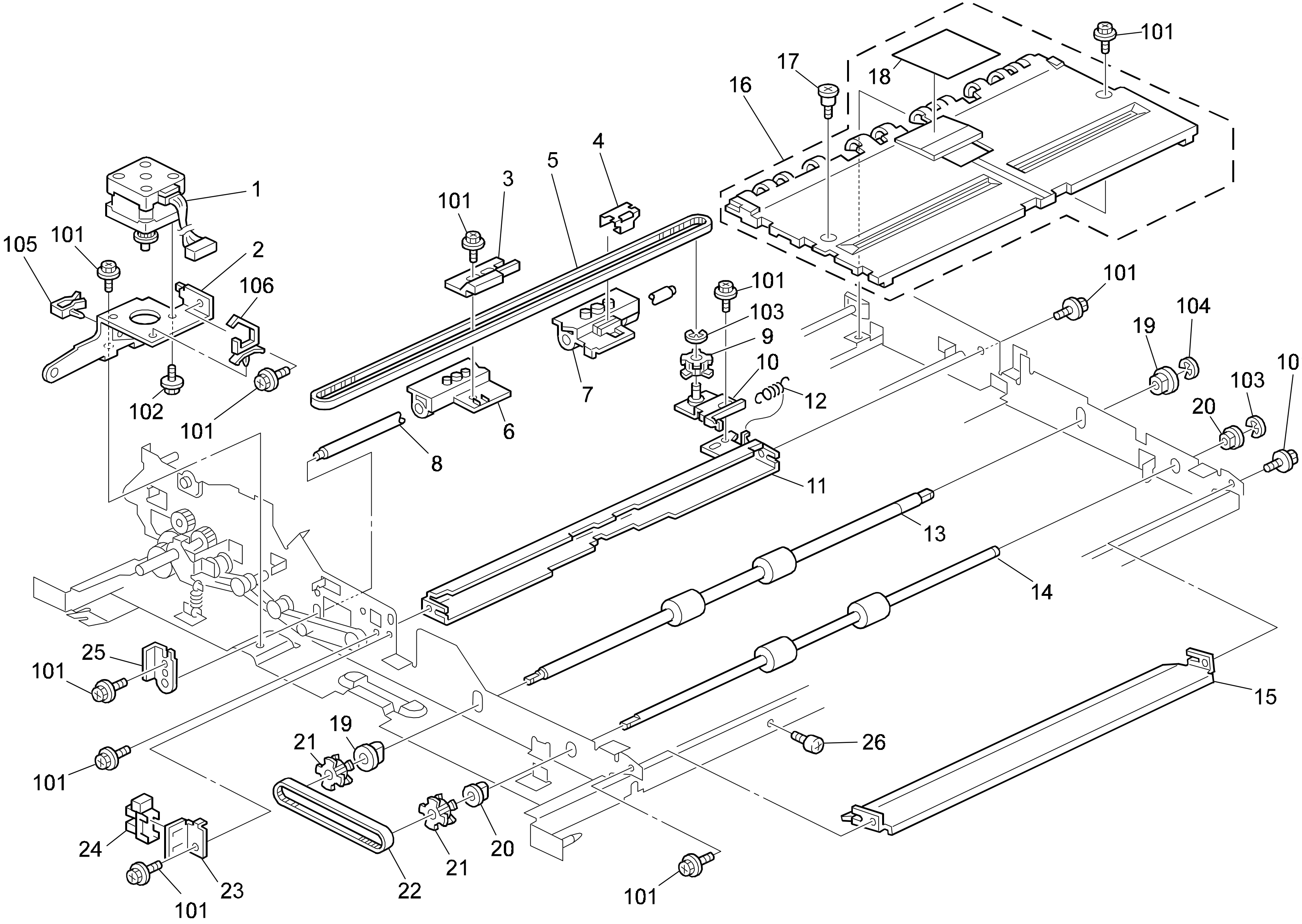
54.DUPLEX UNIT 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 4674	Inverter Exit Guide - Right	1
2	A294 4661	Duplex Junction Gate	1
3	A294 4673	Inverter Exit Guide - Left	1
4	5447 2681	Snap Ring	2
5	AG05 1141	Release Lever	1
6	AA06 6315	Rear Guide Spring	1
7	AA06 6316	Front Guide Spring	1
8	AA02 1031	Magnetic Catch	1
9	A294 4813	Lower Duplex Guide	1
10	A294 4802	Duplex Entrance Guide	1
11	AA14 3426	Stopped Screw - M4x17	1
12	A294 4807	Rear Side Plate - Duplex	1
13	AA06 3344	Pressure Spring	2
14	AA08 0034	Bushing - 4x5x7	2
15	AF02 2114	Duplex Driven Roller	1
16	AA12 0096	Duplex Antistatic Brush	1
17	A294 4809	Inverter Knob	1
18	A294 4806	Knob Bracket	1
19	AW01 0049	Photo Reflection Sensor	1
20	A294 4808	Front Side Plate - Duplex	1
21	AA06 6331	Duplex Entrance Spring	1
22	AA06 0805	Duplex Junction Spring	1
23	A294 4662	Junction Gate Solenoid	1
24	A294 4665	Cushion - 6x6x2	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0313 0040B	Philips Pan Head Screw - M3x4	
103	0453 4006B	Tapping Screw - 4x6	
104	0452 4006B	Tapping Screw - M4x6	
105	0720 0030B	Retaining Ring - M3	
106	0451 3008B	Tapping Screw - M3x8	
107	0450 3008B	Tapping Screw - M3x8	
108	1105 0328	Harness Clamp - ES-0505	
109	1105 0291	Harness Clamp - LWS-3S	

55.DUPLEX UNIT 4 (A294)



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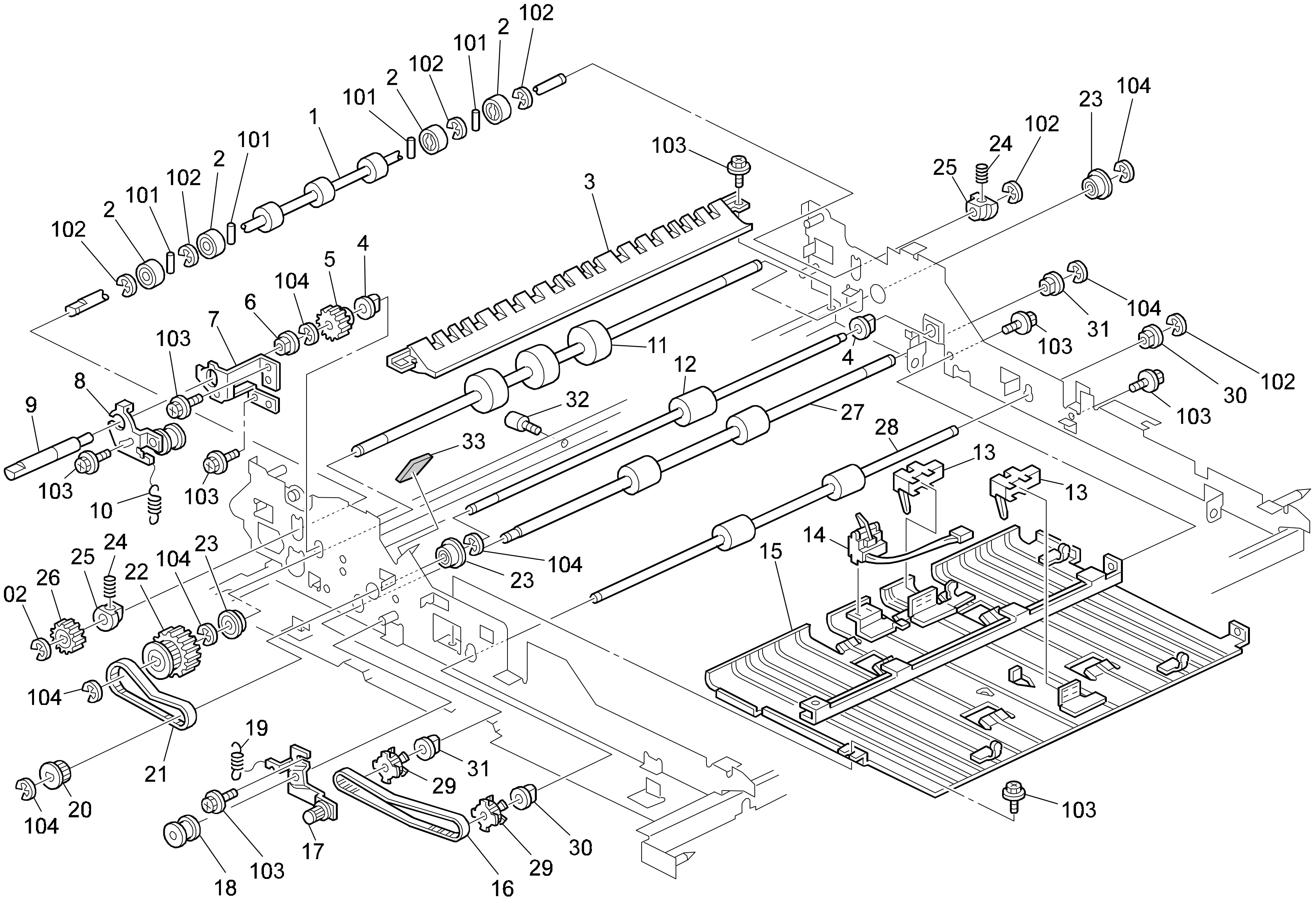
55.DUPLEX UNIT 4 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 4712	Motor - DC 17.76W	1
2	A294 4711	Jogger Motor - Bracket	1
3	A294 4723	Belt Holder Fixing Plate	1
4	A294 4718	Belt Holder	1
5	AA04 3282	Timing Belt - 774P2M4	1
6	A294 4721	Front Jogger Slider	1
7	A294 4716	Rear Jogger Slider	1
8	A294 4730	Jogger Guide Rod	1
9	A697 4170	Pulley - 32T	1
10	A294 4726	Idle Bracket	1
11	A294 4733	Jogger Fence Guide	1
12	AA06 0742	Tension Spring	1
13	AF02 0479	Drive Transport Roller	1
14	AF02 0480	Driven Transport Roller	1
15	A096 4891	Lever Exit Guide	1
16	A294 4737	Left Duplex Table	1
17	AA14 3307	Stepped Screw - M3	1
18	A294 4738	Duplex Entrance Seal	1
19	AA08 2047	Bushing - 8x16x7	2
20	AA08 2046	Bushing - 6x12x6	2
21	AB03 0583	Timing Pulley - 24Z	2
22	AA04 3279	Timing Belt - B60S3M225	1
23	A294 4736	Jogger HP Sensor Bracket	1
24	AW02 0056	Photointerruptor - EE-SX4235A-P1	1
25	A294 4732	Guide Rod Plate	1
26	5918 3120	Stud - M4	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0451 3006B	Tapping Screw - M3x6	
103	0720 0040B	Retaining Ring - M4	
104	0720 0060B	Retaining Ring - M6	
105	1105 0267	Harness Clamp - YMC-10-0	
106	1105 0291	Harness Clamp - LWS-3S	

56.DUPLEX UNIT 5 (A294)



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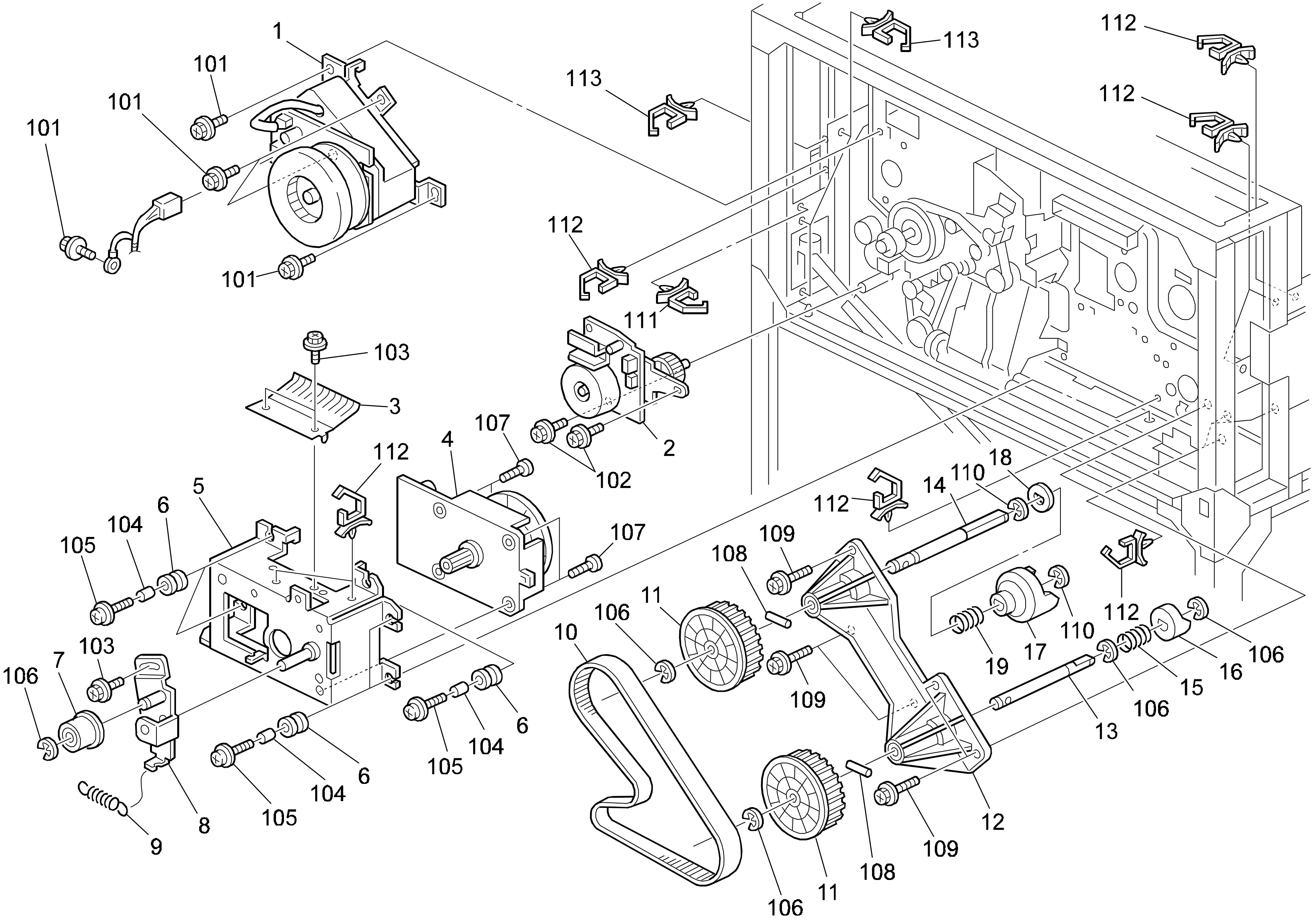
56.DUPLEX UNIT 5 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AF02 0482	Driven Duplex Roller	1
2	A294 4654	Transport Roller	4
3	A294 4626	Lower Duplex Guide Plate	1
4	AA08 2046	Bushing - 6x12x6	2
5	AB01 3603	Gear - 18Z	1
6	AA08 2047	Bushing - 8x16x7	1
7	A294 4831	Duplex Knob Bracket	1
8	A294 4792	Reverse Roller Tightner	1
9	A294 4832	Knob Shaft	1
10	AA06 0808	Reverse Roller Spring	1
11	AF02 0481	Drive Duplex Roller	1
12	AF02 0483	Drive Reverse Roller	1
13	AW02 0102	Photointerruptor	2
14	AW02 0064	Duplex Entrance Sensor	1
15	A294 4621	Upper Guide Plate	1
16	AA04 3281	Timing Belt - B40S2M300	1
17	A294 4788	Transport Tightener	1
18	AB03 0431	Transport Pulley	1
19	AA06 0742	Tension Spring	1
20	AB03 0308	Pulley - 15Z	1
21	AA04 3280	Timing Belt - B40S2M308	1
22	AB01 7511	Coupled Gear - 27Z/38Z	1
23	A232 3566	Ball Bearing - 8x16x5	3
24	AA06 3255	Exit Roller Spring	2
25	5205 2697	Bushing - Upper Registration Roller	2
26	AB01 4139	Gear - 20Z	1
27	AF02 0479	Drive Transport Roller	1
28	AF02 0480	Driven Transport Roller	1
29	AB03 0583	Timing Pulley - 24Z	2
30	AA08 2046	Bushing - 6x12x6	2
31	AA08 2047	Bushing - 8x16x7	2
32	5918 3120	Stud - M4	1
33	A167 4835	Cushion - 2x10x20	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0632 0080G	Parallel Key - 2X8MM	
102	0720 0040B	Retaining Ring - M4	
103	0451 4008B	Philips Tapping Screw - M4x8	
104	0720 0060B	Retaining Ring - M6	

57.DRIVE SECTION 1 (A294)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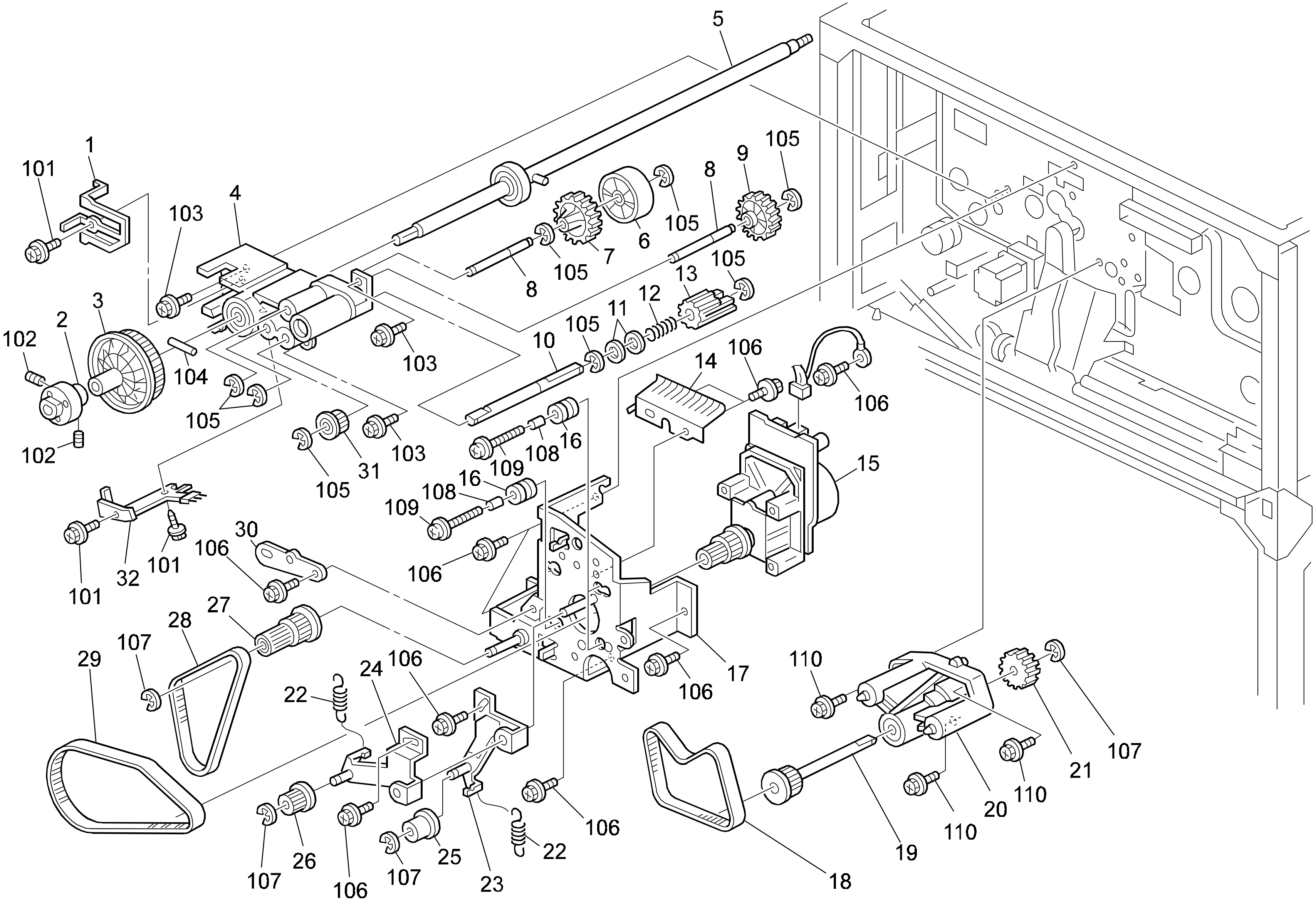
57.DRIVE SECTION 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 3051	Motor - DC 35W	1
2	A294 2800	Paper Feed Motor - DC24V 23.5W	1
3	A294 1134	Ground Plate - Fusing	1
4	AX07 0024	Fusing Motor - DC53W	1
5	A294 1121	Bracket Ass'y - Fusing Motor	1
6	AA16 1072	Cushion - DC Motor	4
7	A294 1127	Tightener - M28	1
8	A294 1124	Tightener - Fusing Duplex	1
9	A294 1169	Tension Spring - 35N	1
10	AA04 3544	Timing Belt - B150S3M741 - Fusing	1
11	AB03 0642	Pulley - T82	2
12	A294 1130	Fusing Drive Bracket	1
13	A294 1136	Shaft - Duplex Drive	1
14	A294 1132	Shaft - Fusing Drive	1
15	AA06 3490	Spring - 21.6mm	1
16	A294 1137	Joint - Duplex	1
17	A079 1201	Fusing Drive Joint	1
18	A079 1203	Fusing Drive Stopper	1
19	AA06 3182	Joint Spring	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0951 4008B	Philips Screw With Washer - M4x8	
103	0451 4006B	Tapping Screw - 4x6	
104	0707 4060B	Bushing - 4x6	
105	0951 4010B	Philips Screw With Washer - M4x10	
106	0720 0060B	Retaining Ring - M6	
107	0314 0060B	Philips Pan Head Screw - M4x6	
108	0633 0200G	Pin - M3x20	
109	0451 4012B	Tapping Screw - 4x12	
110	0720 0080B	Retaining Ring - M8	
111	1105 0291	Harness Clamp - LWS-3S	
112	1105 0292	Wire Saddle	
113	1105 0316	Clamp	

58.DRIVE SECTION 2 (A294)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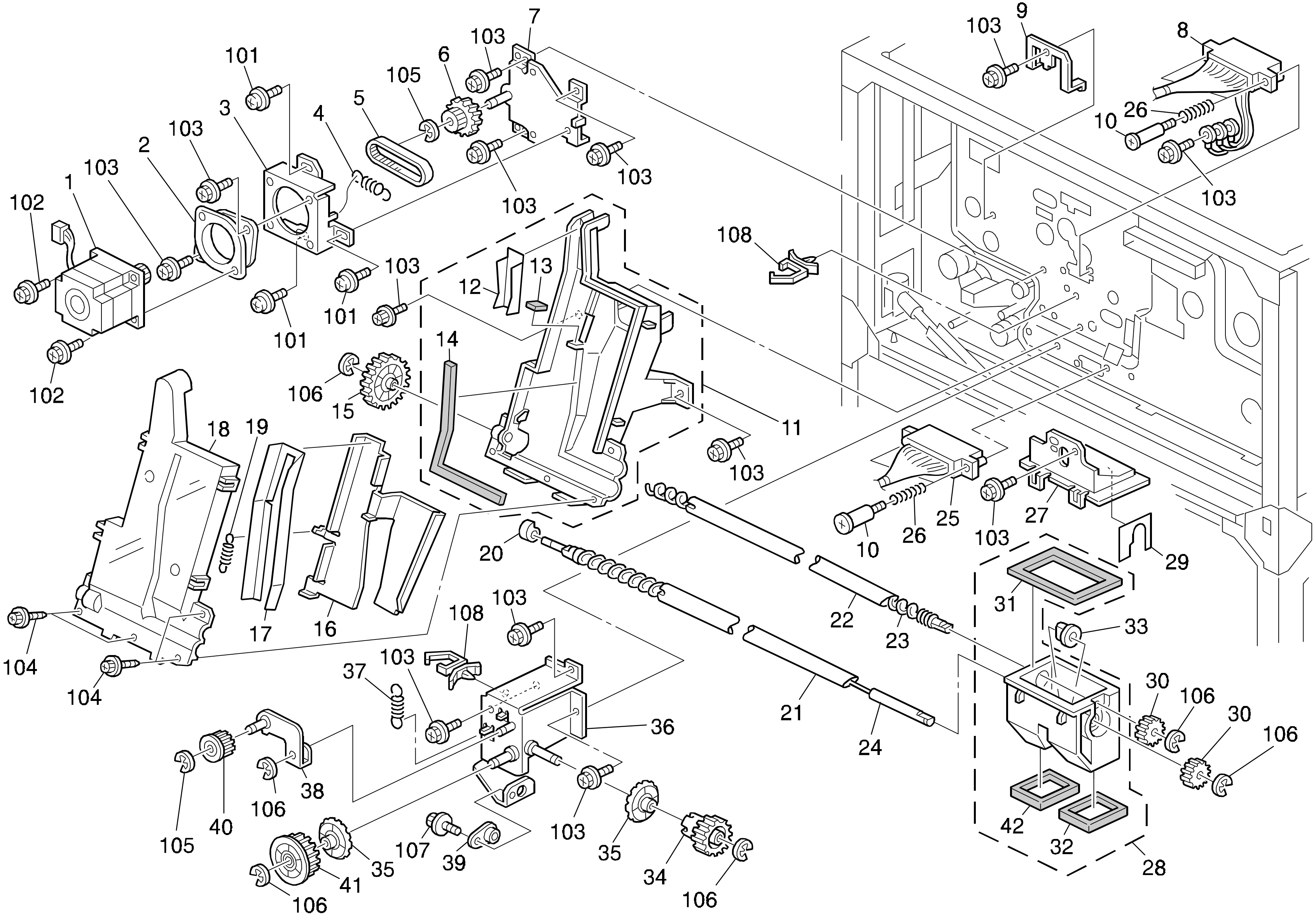
58.DRIVE SECTION 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A247 2327	Terminal Development Bias	1
2	A294 1118	Flange - Fly Wheel	1
3	AB03 0641	Pulley Z125 - Drum	1
4	A294 3680	Drum Shaft Stay	1
5	A294 3660	Drum Drive Shaft	1
6	A294 3671	Cam - Blade Slide	1
7	AB01 7473	Gear - 32Z	1
8	AA14 8579	Shaft - Transport Slide	2
9	AB01 2002	Gear - 13Z	1
10	AA14 8578	Shaft - Cleaning Drive	1
11	AA13 2024	Spacer - M6	2
12	AA06 3604	Pressure Spring	1
13	A294 3656	Gear Joint - Z16	1
14	A294 1113	Ground Plate - Drum	1
15	AX06 0189	Drum Motor - DC31W	1
16	AA16 1072	Cushion - DC Motor	4
17	A294 1101	Bracket - Drum Motor	1
18	AA04 3542	Timing Belt - B100S2M426	1
19	A294 1142	Transfer Drive Shaft	1
20	A096 1123	Belt Drive Bracket	1
21	A294 1141	Gear - 24Z	1
22	A294 1167	Tension Spring - 12N	2
23	A294 1109	Tightener - Transfer Cleaning	1
24	A294 1105	Tightener - Drum Unit	1
25	A294 1112	Pulley Tightener - M19	1
26	AB03 0652	Pulley Tightener - T34	1
27	AB03 3093	Idle Pulley - 25T/20T	1
28	AA04 3545	Timing Belt - B60S3M459	1
29	AA04 3543	Timing Belt - B100S3M327	1
30	A247 1183	Supporting Plate - Drum Shaft	1
31	AB03 0644	Pulley - Cleaning Drive	1
32	A247 2341	Electrode Plate - Drum Shaft	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0450 3008B	Tapping Screw - M3x8	
102	0575 0050E	Hexagon Headless Set Screw - M5x5	
103	0451 4012B	Tapping Screw - 4x12	
104	0633 0220G	Pin - 3x22	
105	0720 0040B	Retaining Ring - M4	
106	0451 4008B	Philips Tapping Screw - M4x8	
107	0720 0060B	Retaining Ring - M6	
108	0707 4060B	Bushing - 4x6	
109	0951 4010B	Philips Screw With Washer - M4x10	
110	0451 4010B	Tapping Screw - 4x10	

59.DRIVE SECTION 3 (A294)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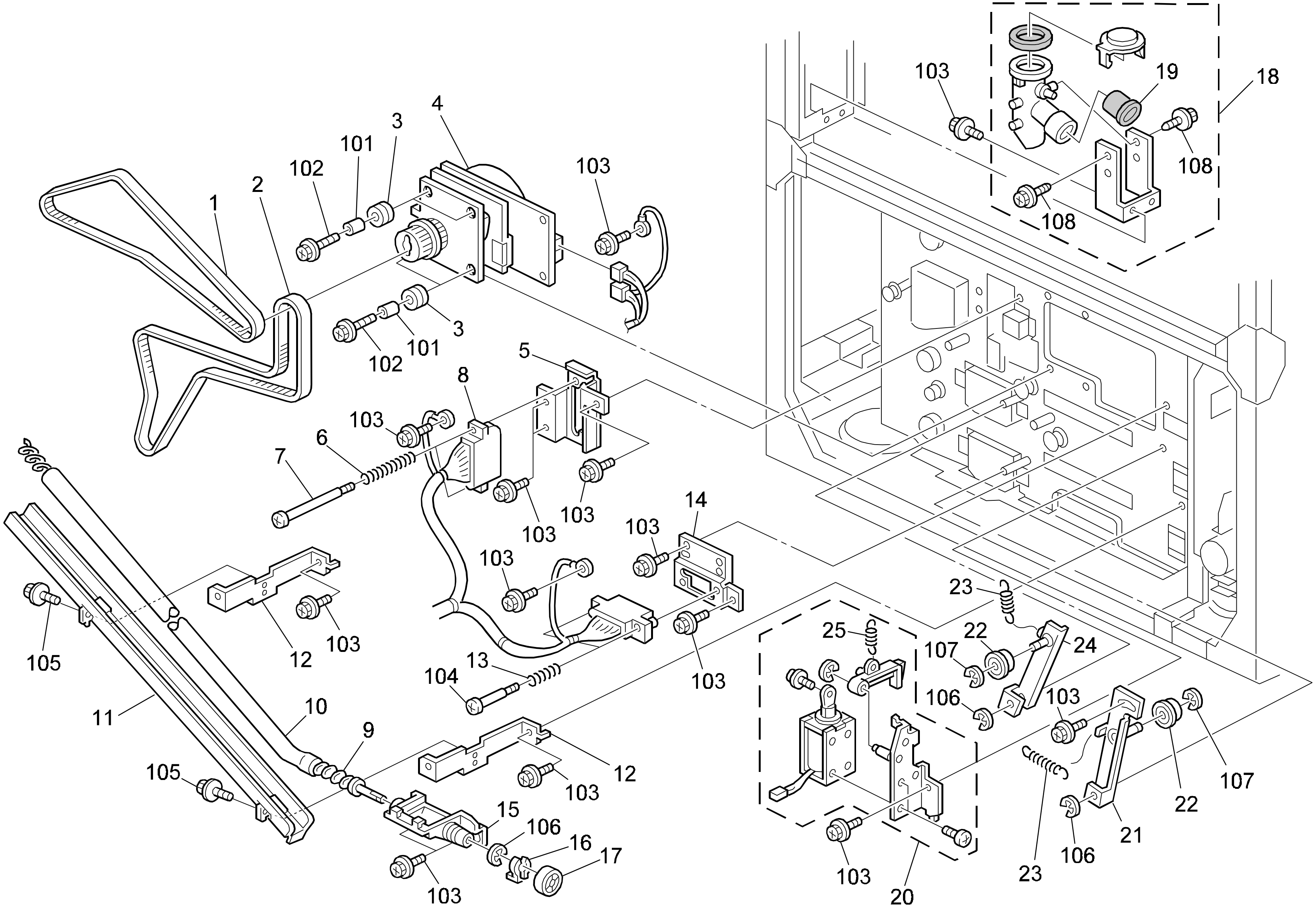
59.DRIVE SECTION 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AX05 0142	Registration Motor - DC24V 9.6W	1
2	AA16 1122	Motor Cushion	1
3	A229 1132	Bracket - Registration Motor	1
4	AA06 0720	Tension Spring - 7.75N	1
5	AA04 3269	Timing Belt - S2M114	1
6	AB01 7449	Gear - 21Z/24T	1
7	A229 1133	Stepper Motor Base Ass'y	1
8	A294 5461	DC Harness - Drum	1
9	A294 3078	Development Ground Plate	1
10	5446 5832	Connector Guide Pin	4
11	A294 3613	Toner Recycling Lower Case	1
12	A294 3628	Upper Guide - Vibrating Plate	1
13	A294 3614	Vibrating Plate Cushion	1
14	A294 3627	Seal - Toner Recycling Lower Case	1
15	A294 3621	Gear - 44Z	1
16	A294 3617	Vibrating Plate -toner Recycling	1
17	A294 3629	Lower Guide - Vibrating Plate	1
18	A294 3612	Toner Recycling Upper Case	1
19	AA06 0119	Arm Spring	1
20	A294 3618	Vibrating Plate Cam	1
21	A294 3623	Used Toner Collection Pipe - M14mm	1
22	A294 3622	Toner Recycling Pipe - M14mm	1
23	A294 3624	Transport Screw - Used Toner	1
24	A294 3619	Transport Screw - Toner Recycling	1
25	A294 5464	DC Harness - Duplex	1
26	AA06 3068	Spring Connector	4
27	A294 3636	Upper Case	1
28	A294 3630	Lower Case	1
29	A294 3637	Upper Case Cover	1
30	A294 3626	Gear - 17Z	2
31	A294 3632	Lower Case Seal	1
32	A294 3634	Seal	1
33	AA08 2058	Bushing - 6x10x9mm	1
34	A294 1162	Gear - Z24	1
35	A294 1163	Gear - 30Z	2

Index No.	Part No.	Description	Q'ty Per Assembly
36	A294 1151	Bracket Ass'y - Collection	1
37	A294 1168	Tension Spring - 27N	1
38	A294 1156	Tightener Ass'y - Collection	1
39	A294 1158	Transport Screw Bushing	1
40	AB03 0653	Pulley - 23T	1
41	AB03 0654	Pulley - T40	1
42	A294 3635	Seal	1
101	0951 4008B	Philips Screw With Washer - M4x8	
102	0451 4010B	Tapping Screw - 4x10	
103	0451 4008B	Philips Tapping Screw - M4x8	
104	0450 3008B	Tapping Screw - M3x8	
105	0720 0060B	Retaining Ring - M6	
106	0720 0040B	Retaining Ring - M4	
107	0451 4006B	Tapping Screw - 4x6	
108	1105 0310	Harness Clamp - LWS-1S	

60.DRIVE SECTION 4 (A294)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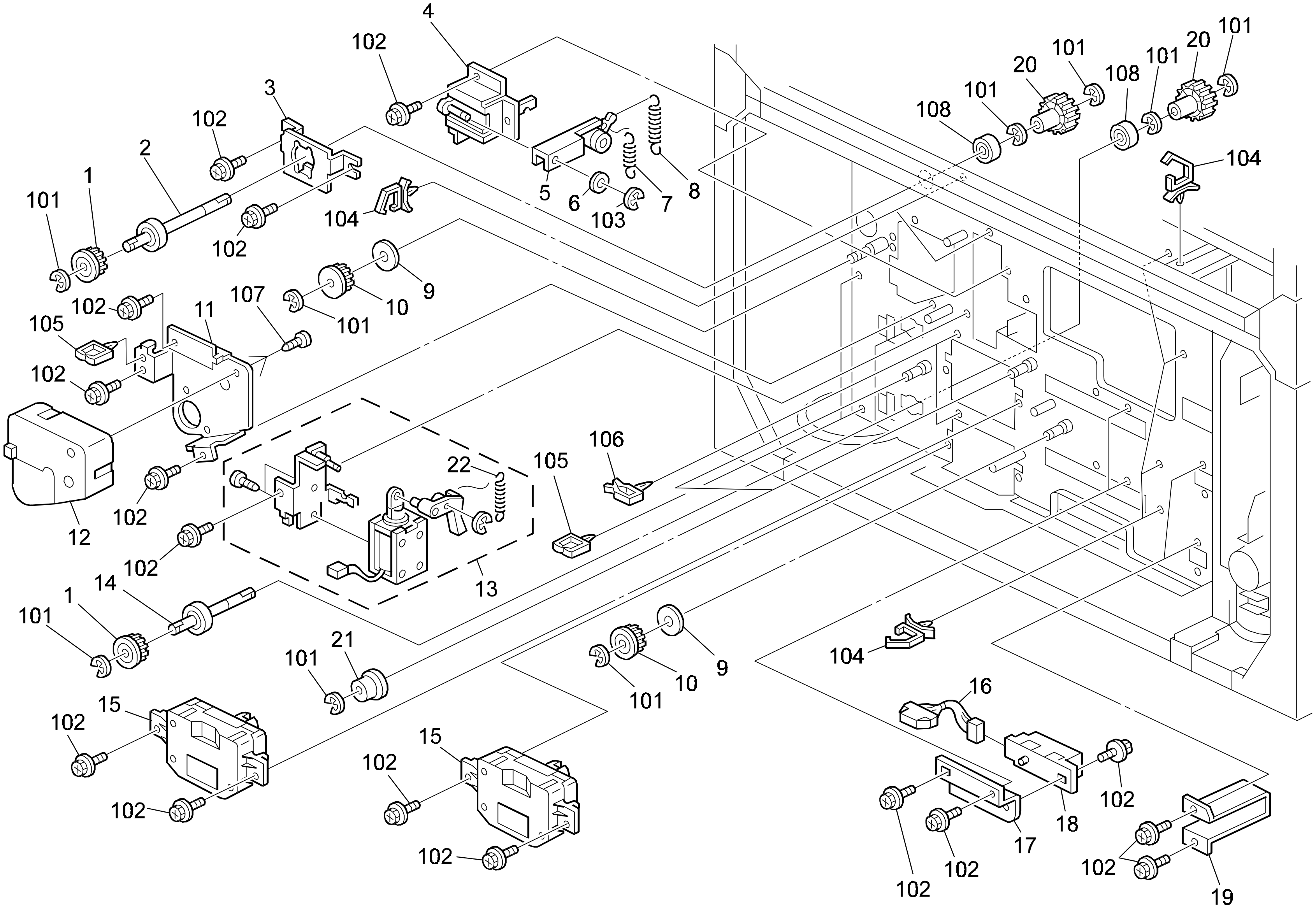
60.DRIVE SECTION 4 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AA04 3540	Timing Belt - 633P3M6	1
2	AA04 3541	Timing Belt - 852P3M6	1
3	AA16 1104	Cushion - Motor	1
4	A294 6171	DC Motor - 27.6W	4
5	A248 6767	Right Connector Bracket	1
6	AA06 3583	Spring	2
7	AA14 3483	Stepped Screw	2
8	A294 5462	DC Harness - Tandem LCT	1
9	A294 3477	Toner Transport Screw	1
10	A294 3475	Tube - 12x14x835	1
11	A294 3482	Tube Guide Rail	1
12	A294 1514	Bracket - Feed Control Board	2
13	AA06 3268	Connector Spring	2
14	A248 6757	Left Connector Bracket	1
15	A294 3471	Toner Transport Screw Case	1
16	5447 2681	Snap Ring	1
17	A294 3480	Driving Joint	1
18	A294 3485	Toner Transport Joint	1
19	A294 3476	Pipe Seal	1
20	A248 6758	DC Lock Solenoid	1
21	A096 6186	Lower Tightner - P/B	1
22	AB03 2716	Idle Pulley - M18	2
23	AA06 2311	Paper Bank Drive Spring	2
24	A096 6188	Upper Tightner - P/B	1
25	AA06 0754	Tension Spring	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0707 4050B	Bushing - 4x5	
102	0451 4012B	Tapping Screw - 4x12	
103	0451 4008B	Philips Tapping Screw - M4x8	
104	0803 0058	Stepped Screw	
105	0451 4006B	Tapping Screw - 4x6	
106	0720 0040B	Retaining Ring - M4	
107	0720 0060B	Retaining Ring - M6	
108	0450 3008B	Tapping Screw - M3x8	

61.DRIVE SECTION 5 (A294)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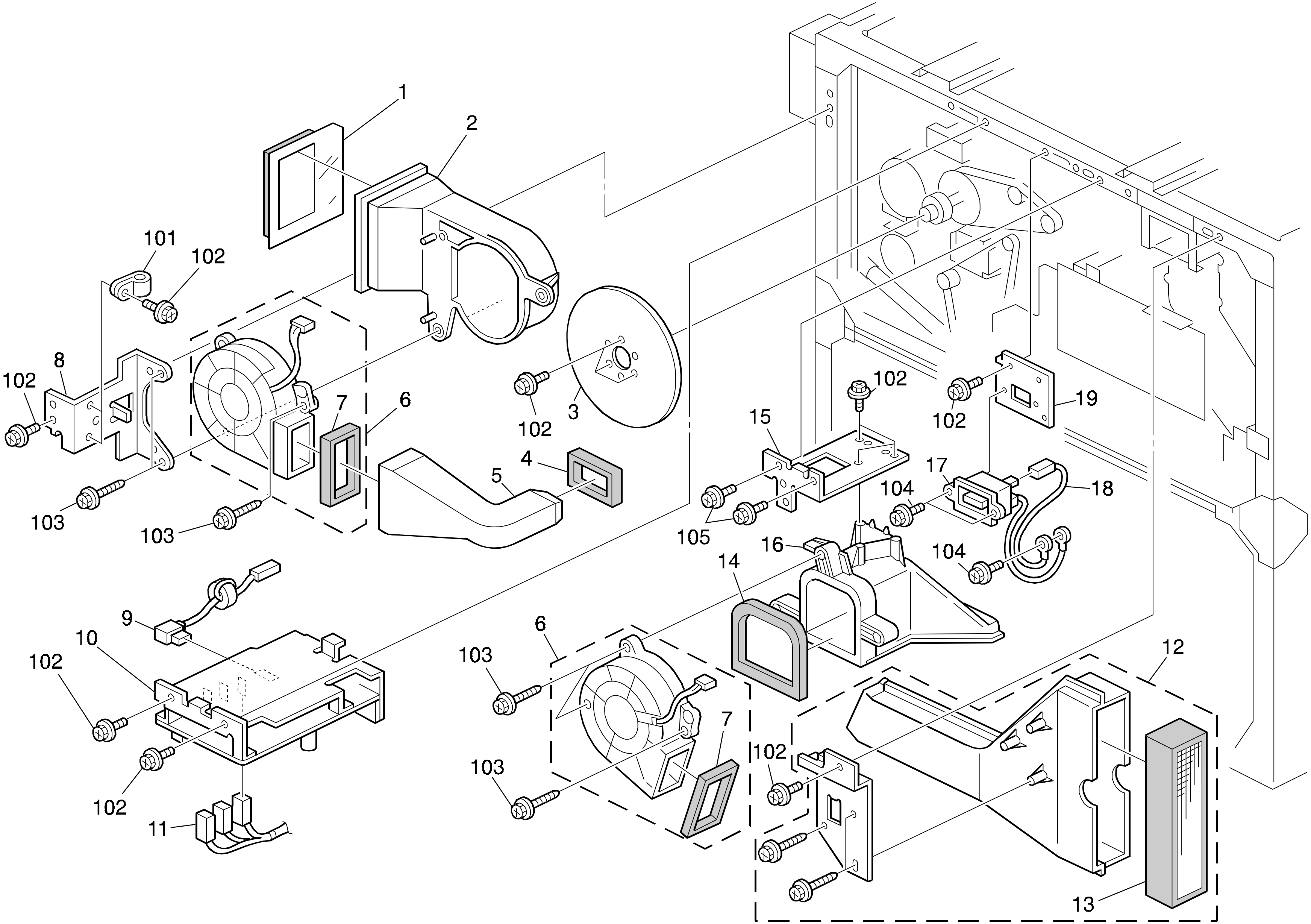
61.DRIVE SECTION 5 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AB03 0391	Timing Pulley - 22Z	2
2	A247 6198	Uper Drive Shaft	1
3	A247 6165	Paper Support Plate	1
4	A293 6766	Arm Bracket	1
5	A248 6792	Lock Arm - Tandem Tray	1
6	AA13 2203	Spacer - 6mm	1
7	AA06 2252	Spring - Small	1
8	AA06 2251	Spring - Large	1
9	AA13 2152	Spacer - 8x20x1	2
10	AB03 0364	Timing Pulley - 18Z	2
11	A248 6168	Bracket - Lift Motor	1
12	A248 6167	DC Motor - 19.2W	1
13	A248 6750	DC Solenoid - Coupling	1
14	A096 6199	Lower Drive Shaft	1
15	AX04 0117	DC Motor - 1.9W	2
16	A096 5416	Paper Size Harness	2
17	A096 6177	Paper Size Bracket	2
18	AW50 0010	Push Switch	2
19	A096 6158	Paper Tray Stopper	2
20	AB01 3781	Gear - 30Z	2
21	AB03 2716	Idle Pulley - M18	2
22	AA06 0755	Tension Spring	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0060B	Retaining Ring - M6	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	0720 0040B	Retaining Ring - M4	
104	1105 0291	Harness Clamp - LWS-3S	
105	1105 0199	Clamp	
106	1105 0087	Clamp	
107	0414 0102B	Tapping Screw M4x10	
108	0740 3008	Ball Bearing - 8x22x7	

62.ELECTRICAL SECTION 1 (A294)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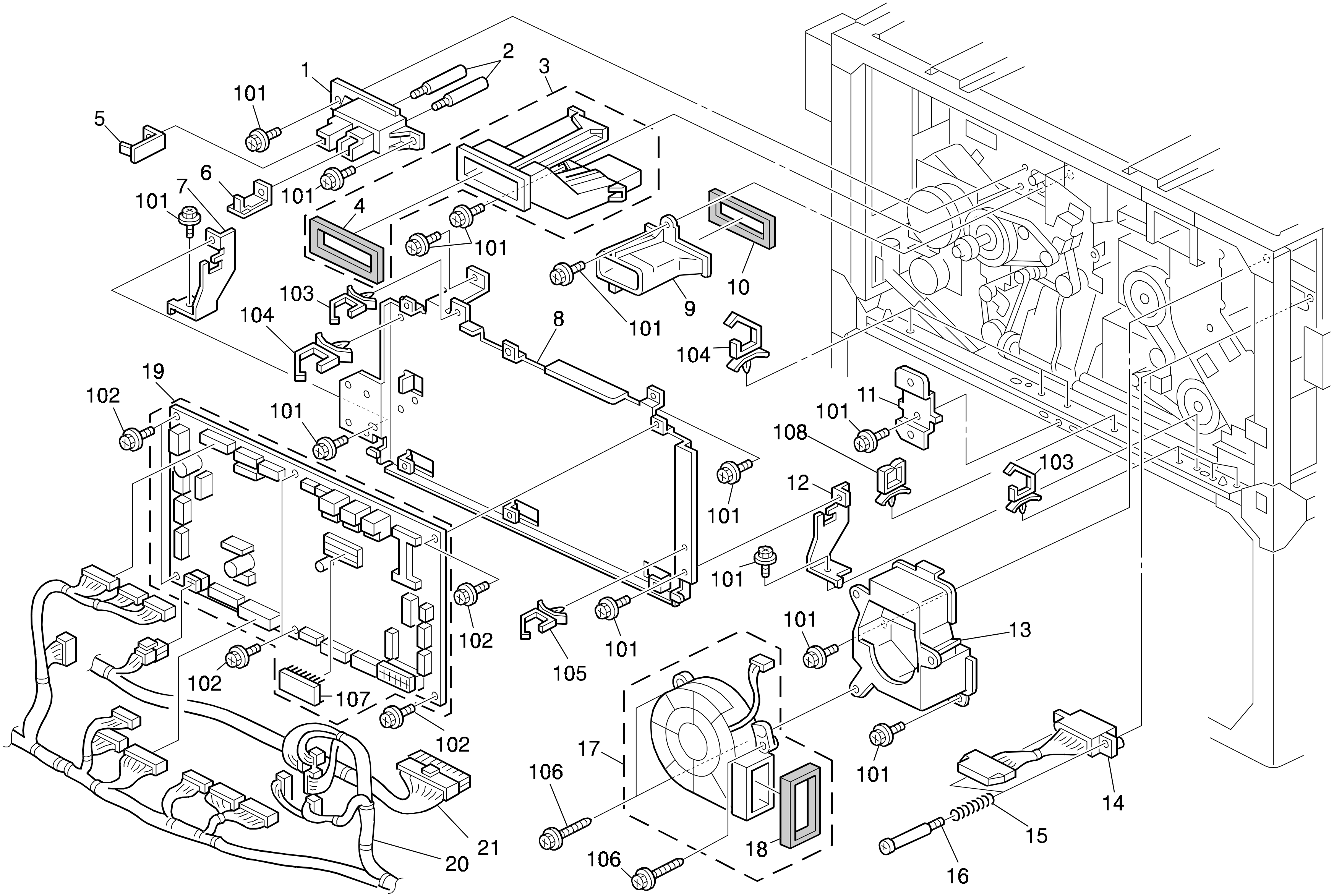
62.ELECTRICAL SECTION 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 2120	Seal - Fan Duct	1
2	A294 2121	Exhaust Fan Duct	1
3	A134 1135	Fly Wheel	1
4	AA15 1771	Seal - 5x10x138	1
5	A247 2116	Exhaust Duct	1
6	A247 2110	DC Motor - 11W	2
7	AA15 1775	Seal - Fan	2
8	A294 2062	Bracket - Exhaust Duct	1
9	A294 5361	Cable - 10KV 105C	1
10	AZ32 0097	DC Power Board	1
11	A294 5365	High Voltage Cable - G/B/S	1
12	A294 2071	Exhauset Duct Ass'y	1
13	A294 2076	Ozone Filter	1
14	A294 2079	Seal - Rear Duct	1
15	A294 2065	Bracket - Rear Duct	1
16	A294 2067	Rear Duct Ass'y	1
17	A294 5487	Grounding Wire - DF	1
18	A294 5486	Interface Grounding Harness	1
19	A294 1509	ADF Plug Bracket	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	1105 0009	Nylon Clamp - 5n	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	0450 4016B	Tapping Screw - 4x16	
104	0451 3008B	Tapping Screw - M3x8	
105	0450 4008B	Tapping Screw - 4x8	

63.ELECTRICAL SECTION 2 (A294)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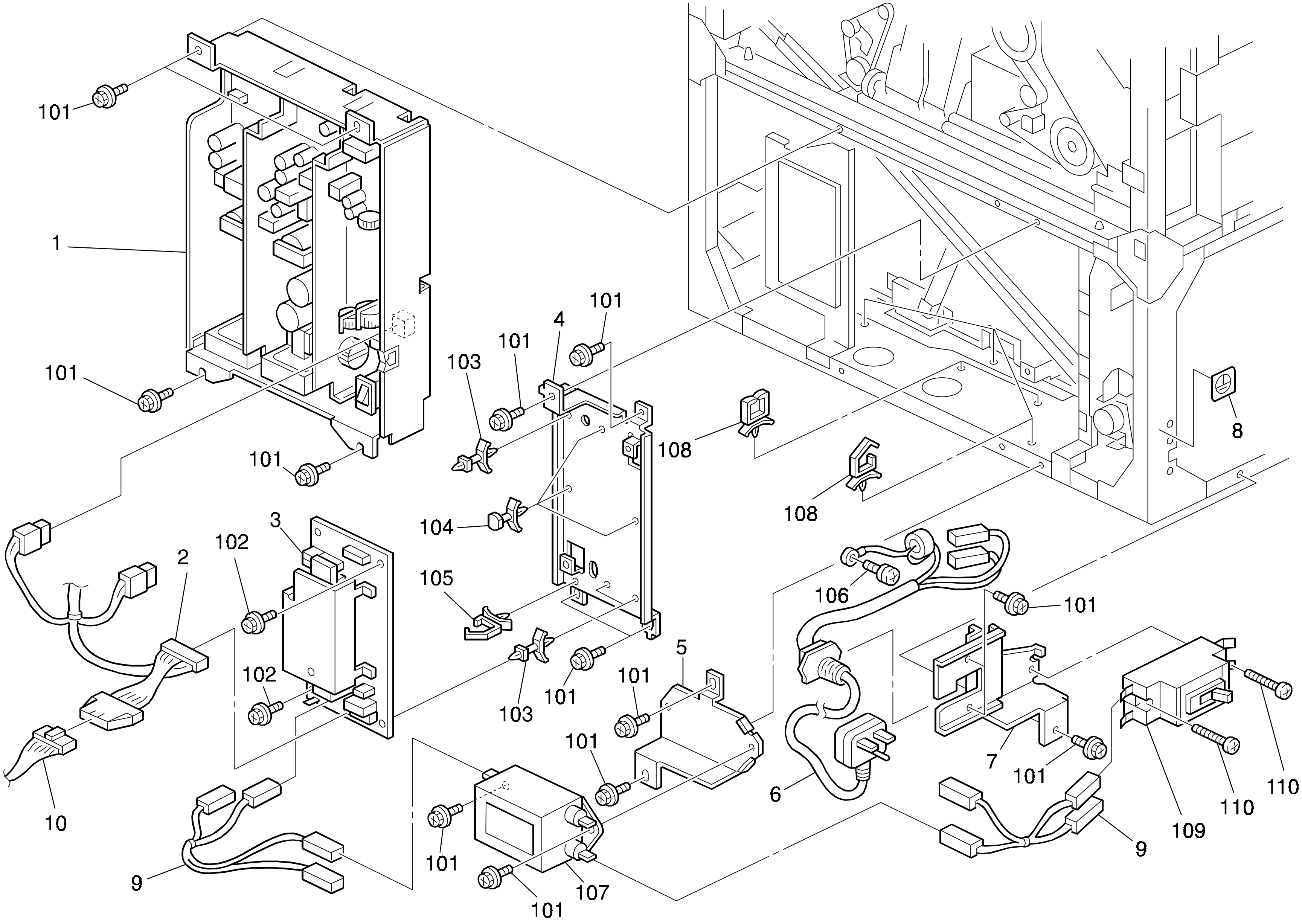
63.ELECTRICAL SECTION 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 2051	Rear Receptacle	1
2	A294 2052	Receptacle Pin	2
3	A247 2113	Drum Cooling Duct	1
4	AA15 3067	Seal - Cooling Duct	1
5	A294 2053	Receptacle Connector - G	1
6	A294 2122	Receptalce Connector - C	1
7	A294 1502	Right Hinge - BCU	1
8	A294 1501	Bracket BCU	1
9	A294 2057	Inner Duct	1
10	A294 2054	Seal - Inner Duct	1
11	A294 1369	Bracket - Under Cover	1
12	A294 1503	Left Hinge - BCU	1
13	A294 1182	Exhaust Duct - Fusing	1
14	A294 5466	Paper Exit Harness	1
15	AA06 3068	Spring Connector	2
16	5446 5832	Connector Guide Pin	1
17	A247 2110	DC Motor - 11W	1
18	AA15 1775	Seal - Fan	1
19	A294 5261	BCU Board	1
20	A294 5450	DC Main Harness	1
21	A294 5453	DC Harness - Power Supply	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0451 3006B	Tapping Screw - M3x6	
103	1105 0292	Wire Saddle	
104	1105 0316	Clamp	
105	1105 0310	Harness Clamp - LWS-1S	
106	0450 4016B	Tapping Screw - 4x16	
107	1407 4730	Sram Stk12c68-w45	
108	1105 0198	Harness Clamp - WS-3 NSV-0	

64.ELECTRICAL SECTION 3 (A294)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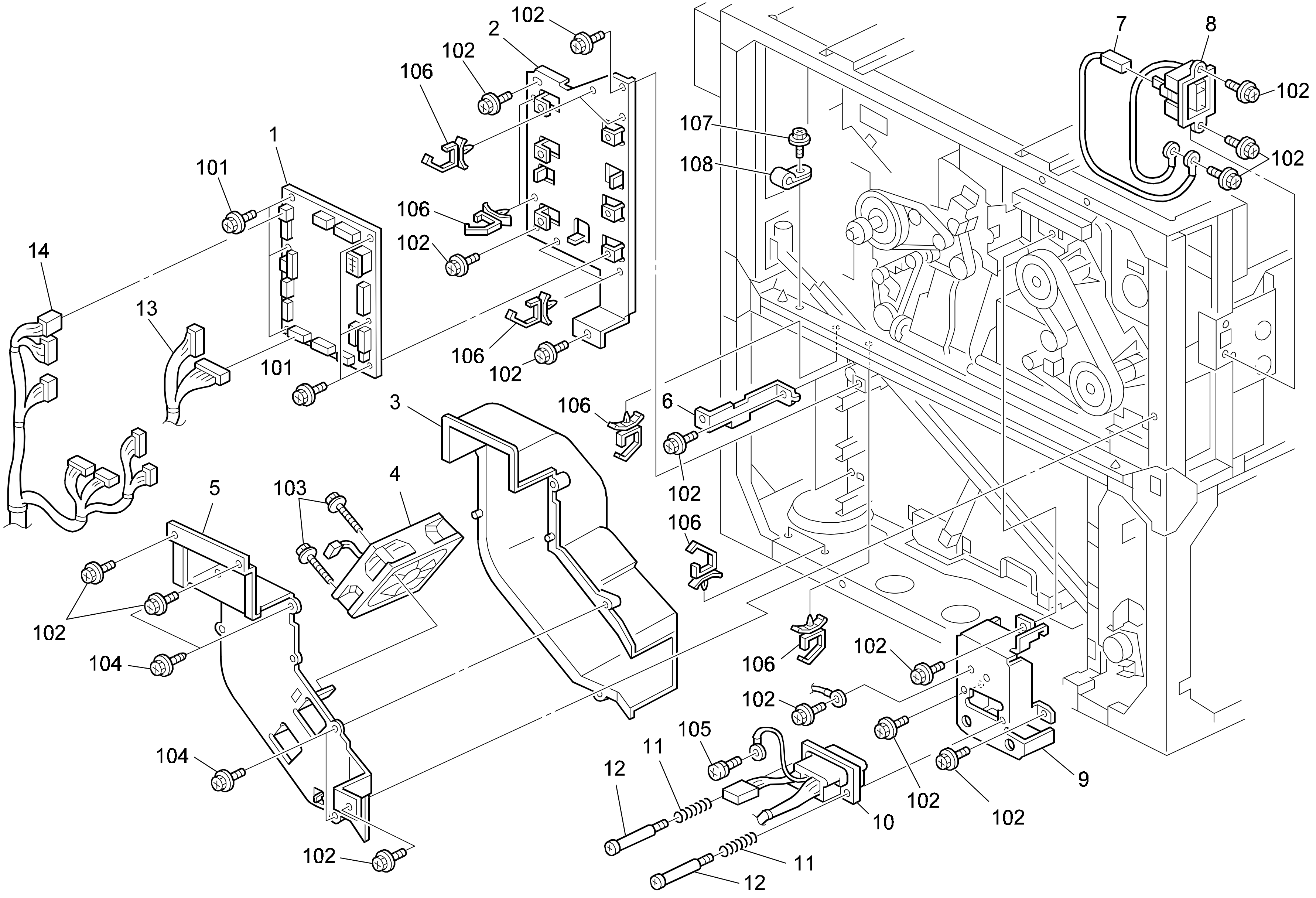
64.ELECTRICAL SECTION 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AZ25 0012	Power Supply Unit - 819W 200-240V	1
2	A294 5440	AC Harness	1
3	A294 5410	AC Drive Board	1
4	A294 1523	Bracket - AC Drive Board	1
5	A294 1521	Bracket - Noise Filter	1
6	A294 5620	Power Cord - USA	1
6	A294 5670	Power Cord - 230V	1
7	A294 1522	Bracket - Power Cord	1
8	AA00 1190	Decal - Ground	1
9	A294 5441	DC Harness	2
10	A294 5442	AC Harness - Heater	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0451 3006B	Tapping Screw - M3x6	
103	1105 0192	Locking Support	
104	1106 0383	Supportor - P.C.B.	
105	1105 0292	Wire Saddle	
106	0801 0142	Screw - Spring Washer - M5X8	
107	1607 1143	Noise Filter	
108	1105 0198	Harness Clamp - WS-3 NSV-0	
109	1107 0943	Circuit Brackekr - 1.5KA	
110	0434 0200B	Pan Head Self-tapping Screw - M4x20	

65.ELECTRICAL SECTION 4 (A294)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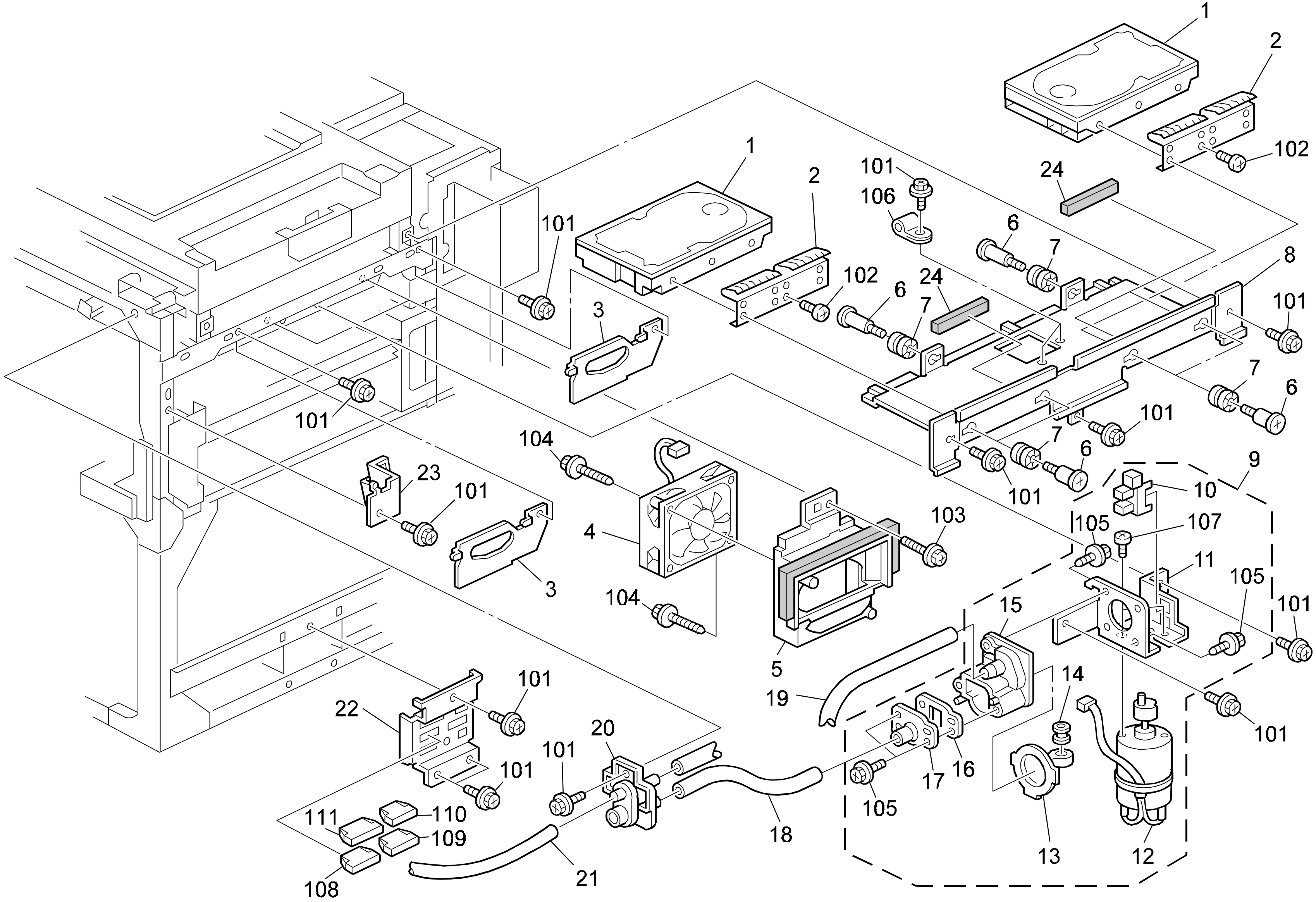
65.ELECTRICAL SECTION 4 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 5300	IO Board	1
2	A294 1513	Bracket - Feed Control Board	1
3	A294 4372	Paper Cooling Duct	1
4	AX64 0106	Fan Motor - DC 2.88W	1
5	A294 4373	Paper Cooling Duct Cover	1
6	A294 1514	Bracket - Feed Control Board	2
7	A294 5486	Interface Grounding Harness	1
8	A294 5485	Interface Finisher Griunding Harnes	1
9	A294 4183	Cable Connector Bracket	1
10	A294 5465	Fusing Harness	1
11	AA06 3068	Spring Connector	2
12	5446 5832	Connector Guide Pin	2
13	A294 5468	Sub DC Harness - Paper Bank	1
14	A294 5452	Main DC Harness - Paper Bank	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 3006B	Tapping Screw - M3x6	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	0451 4035B	Tapping Screw - M4x35	
104	0450 4010B	Tapping Screw - 4x10	
105	0950 4006B	Screw - M4X6	
106	1105 0292	Wire Saddle	
107	0451 4010B	Tapping Screw - 4x10	
108	1105 0009	Nylon Clamp - 5N	

66.ELECTRICAL SECTION 5 (A294)



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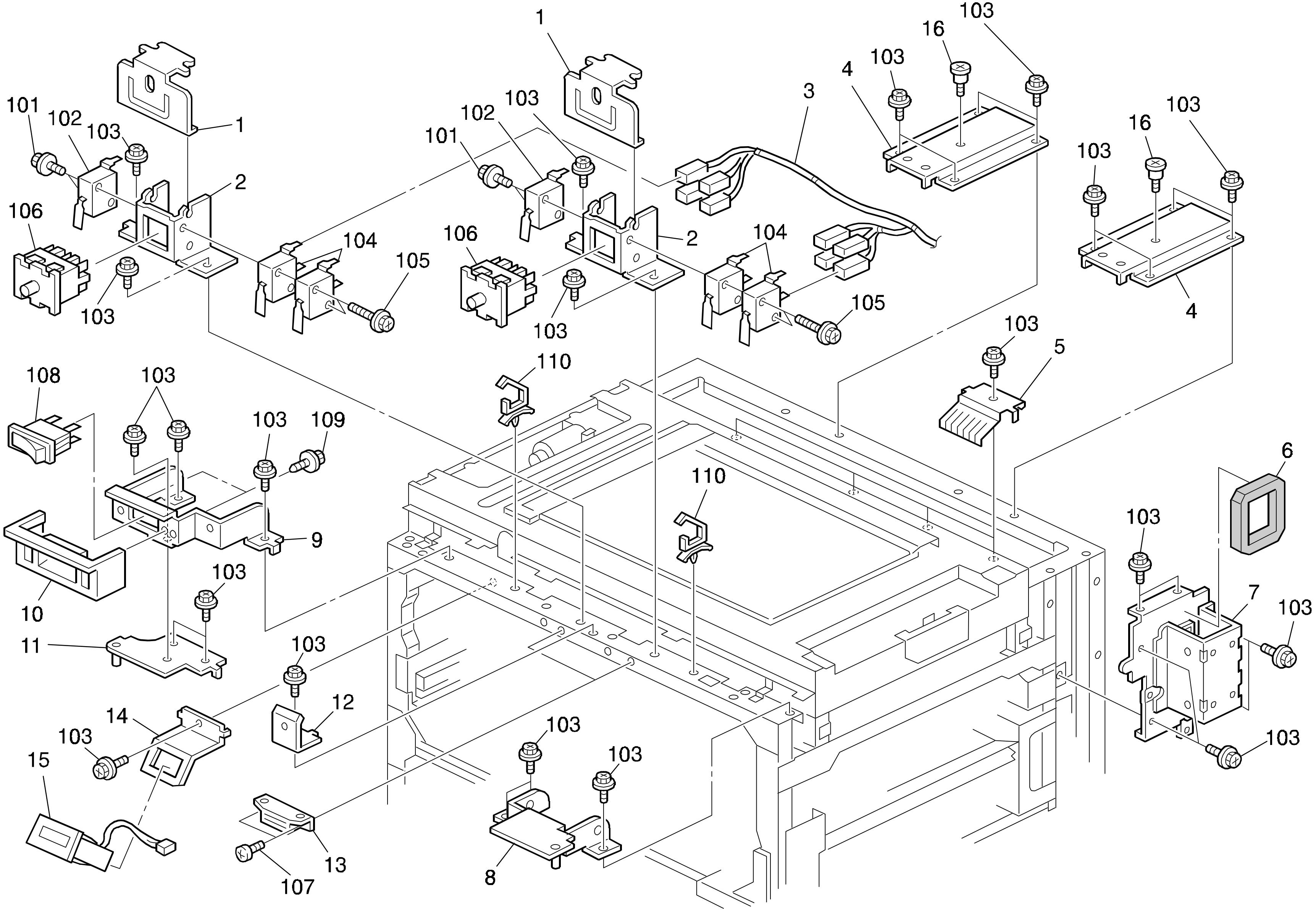
66.ELECTRICAL SECTION 5 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A691 5878	Hard Disk Drive - Fireball CR	2
2	A294 1506	HDD Ground Plate	2
3	A294 3093	Air Block Plate	2
4	AX64 0106	Fan Motor - DC 2.88W	1
5	A294 3090	Fan Duct	1
6	AA14 3499	Stepped Screw	6
7	AA16 1125	Rubber Cushon	6
8	A294 1507	Bracket - HDD	1
9	A294 3062	Air Pump Motor - DC 5.85W	1
10	AW02 0056	Photointerruptor - EE-SX4235A-P1	1
11	A294 3064	Air Pump Bracket	1
12	A294 3065	DC Motor - Tonner Supply	1
13	A294 3086	Toner Supply Pump	1
14	A294 3084	Coller - 4x7x8	1
15	A294 3081	Air Pump	1
16	A294 3085	Pump Seal	1
17	A294 3083	Pump Cap	1
18	A294 3072	Tube - 6x9x170	1
19	A294 3071	Tube - 6x9x1000	1
20	A294 3061	Pump Joint	1
21	A294 3070	Tube - 6x9x740	1
22	A294 1511	Connector Bracket	1
23	A294 3076	Development Connector Bracket	1
24	A294 1505	HDD Gasket	2

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0801 0153	Bind Screw - M6x32	
103	0451 4014B	Tapping Screw - M4x14	
104	0450 4035B	Philips Tapping Screw - M4x35	
105	0450 4008B	Tapping Screw - 4x8	
106	1105 0306	Metal Clamp - Al-4	
107	0450 4035B	Philips Tapping Screw - M4x35	
108	1102 6265	Connector - RED 8P	
109	1102 6251	Connector - 8P	
110	1102 6245	Relay Connector - 2P	
111	1102 6256	Relay Connector - 13P	

67.ELECTRICAL SECTION 6 (A294)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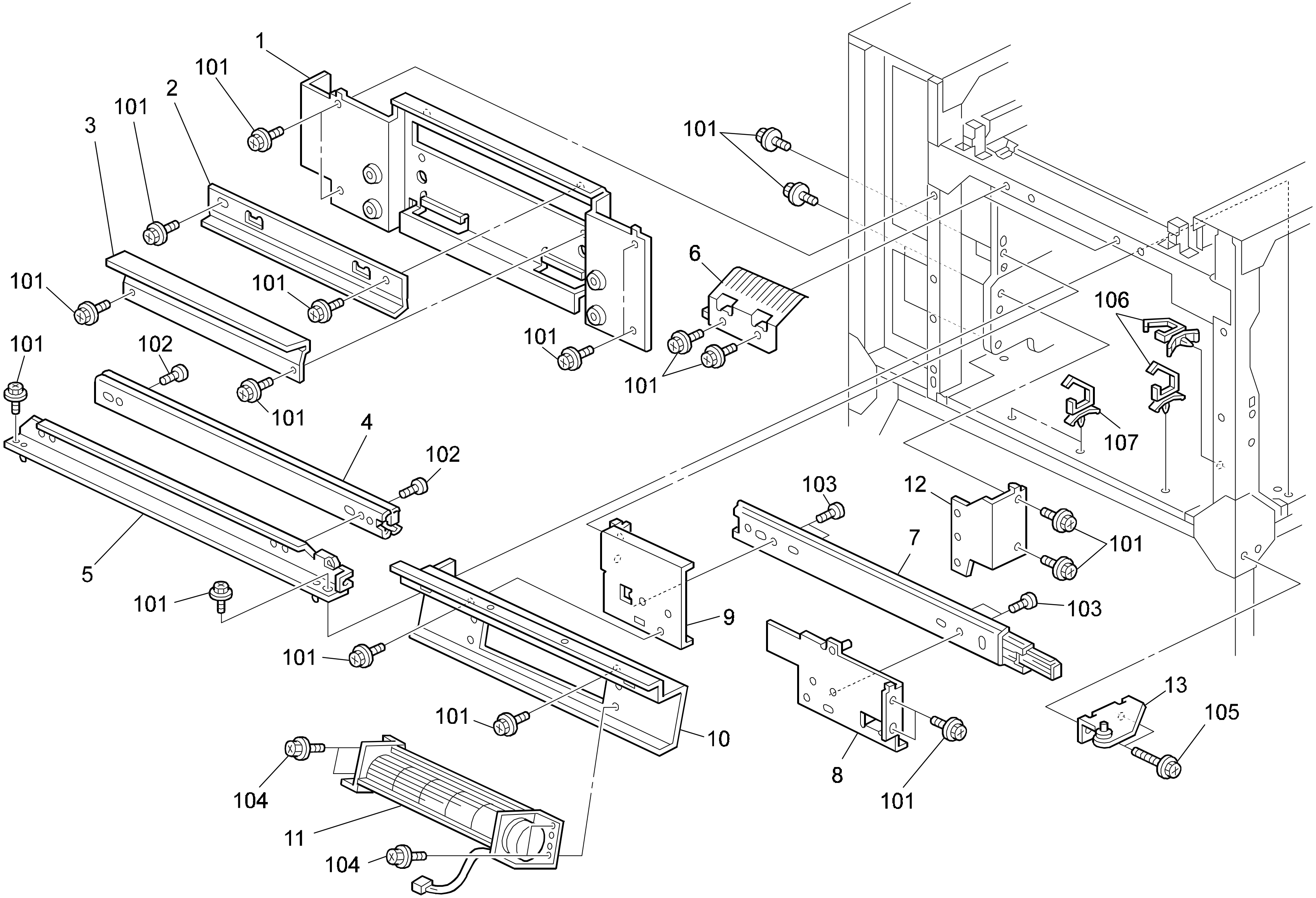
67.ELECTRICAL SECTION 6 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 1346	Lever - Interlock Switch	2
2	A294 1345	Bracket - Interlock Switch	2
3	A294 5226	Safety Switch Harness	1
4	A294 1086	ADF Holder	2
5	A294 1837	Ground Plate - Rear Frame	4
6	A294 2124	Seal - Operation Frame	1
7	A294 1442	Frame - Operation Panel	1
8	A294 1352	Right Upper Hinge	1
9	A294 1348	Bracket - Main Switch	1
10	A294 1349	Cover - Main Switch	1
11	A294 1360	Lower Left Hinge	1
12	A294 1259	Bracket - Upper Cover	1
13	AG07 0004	Magnetic Catch	2
14	A294 1347	Bracket - Total Counter	1
15	AX31 0036	Total Counter	1
16	A859 7211	Stepped Screw	2

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 3014B	Tapping Screw - M3-14	
102	1204 2509	Micro Switch - V16506K-3C205	
103	0451 4008B	Philips Tapping Screw - M4x8	
104	1204 2515	Micro Switch - DE2L-FJ10	
105	0801 0141	Pah Head Screw - M2x16	
106	1204 2508	Interlock Switch - FA7L-AJAB	
107	0314 0080B	Philips Pan Head Screw - M4x8	
108	1204 2468	Switch - AC250/16A	
109	0450 3008B	Tapping Screw - M3x8	
110	1105 0310	Harness Clamp - LWS-1S	

68.FRAME SECTION 1 (A294)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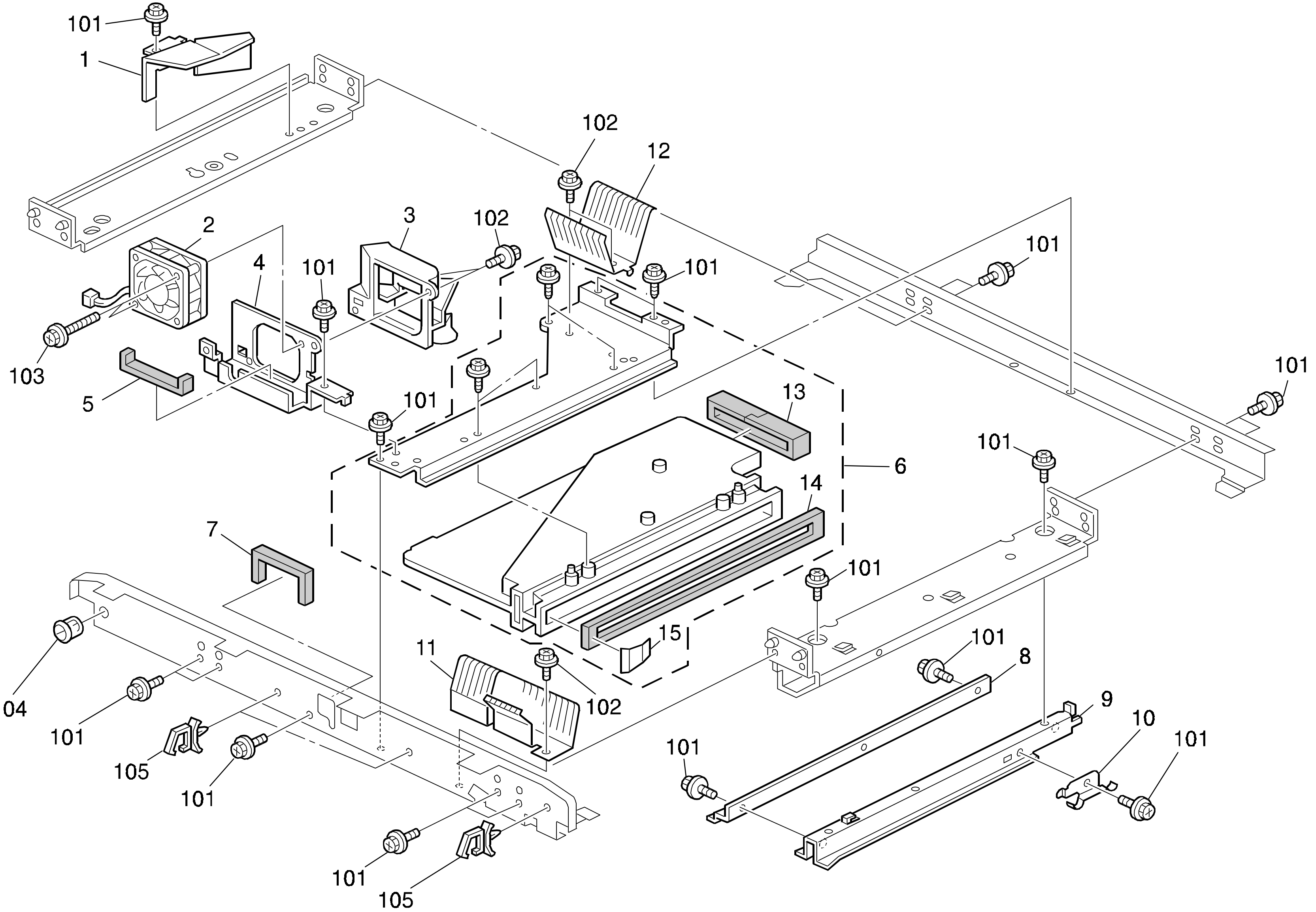
68.FRAME SECTION 1 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 4391	Finisher Connecting Bracket	1
2	A294 4392	Upper Guide Plate	1
3	A294 4393	Lower Exit Guide Plate	1
4	AA07 0048	Duplex Slide Rail	1
5	A294 4871	Slide Rail Stay - Left	1
6	A294 1836	Ground Plate - Left Frame	2
7	AA07 0050	Slide Rail	1
8	A294 4356	Slide Rail Bracket - Left Front	1
9	A294 4357	Slide Rail Bracket - Left Rear	1
10	A294 4369	Fan Motor Bracket	1
11	AX65 0021	Fan Motor - DC6.48W	1
12	A294 1196	Left Fixing Plate	1
13	A294 1363	Lower Left Hinge	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0434 0080B	Pan Head Self-tapping Screw - M4x8	
103	0434 0060B	Pan Head Self-tapping Screw - M4x6	
104	0451 3008B	Tapping Screw - M3x8	
105	0451 4012B	Tapping Screw - 4x12	
106	1105 0310	Harness Clamp - LWS-1S	
107	1105 0292	Wire Saddle	

69.FRAME SECTION 2 (A294)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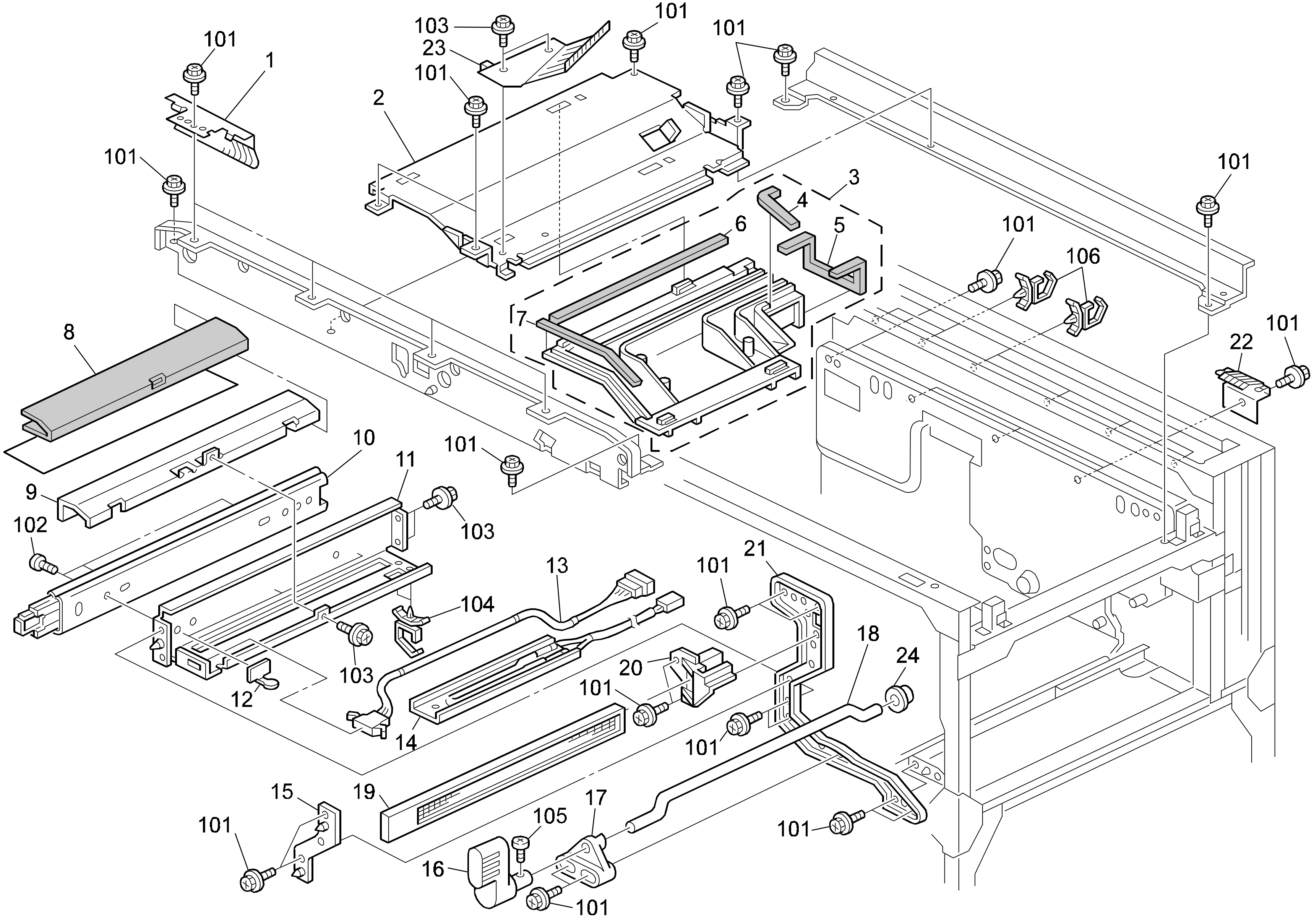
69.FRAME SECTION 2 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 1976	Duct - Left Rear Frame	1
2	AX64 0082	Fan Motor - DC24V 1.8W	1
3	A294 1972	Duct - Optical Housing	1
4	A294 1971	Bracket - Optical Housing Fan	1
5	A294 1975	Lower Seal - Fan Motor	1
6	A294 2101	Duct Ass'y	1
7	A294 1977	Upper Seal - Fan Motor	1
8	A096 1677	Right Rail - Drum Unit	1
9	A229 1186	Development Guide Rail	1
10	A096 1679	Development Grounding Plate	1
11	A294 1992	Ground Plate - Front Imaging Unit	1
12	A294 1991	Ground Plate - Rear Imaging Unit	1
13	A294 2106	Exit Duct Seal	1
14	A294 2108	Entrance Duct Seal	1
15	A294 2109	Entrance Duct Slider	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0451 3006B	Tapping Screw - M3x6	
103	0451 3030B	Tapping Screw - 3x30	
104	1106 0200	Bushing - 19.44mm	
105	1105 0310	Harness Clamp - LWS-1S	

70.FRAME SECTION 3 (A294)



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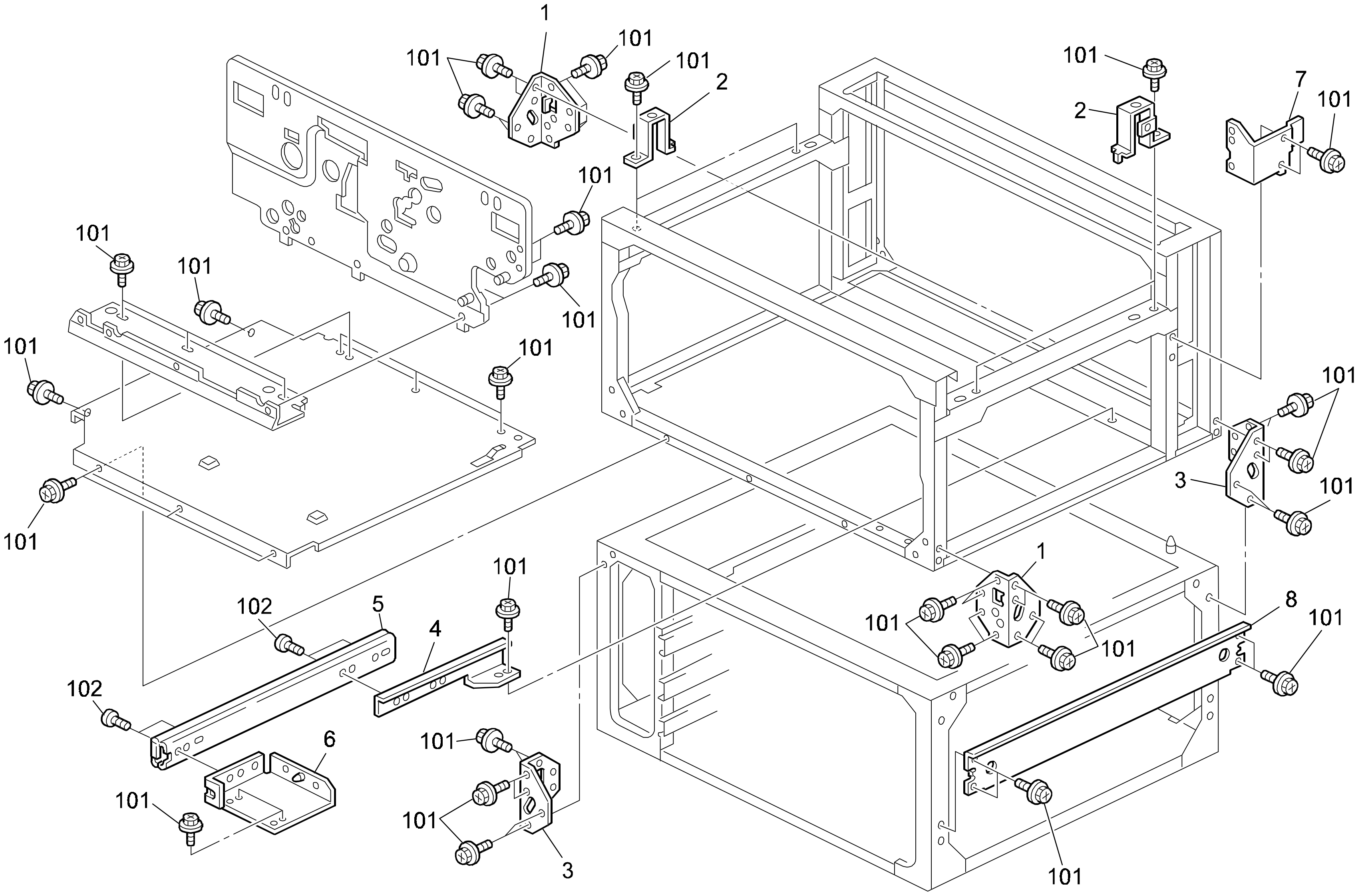
70.FRAME SECTION 3 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A229 1832	Front Grounding Plate	4
2	A294 4379	Duct Stay	1
3	A294 4375	Suction Duct	1
4	AA15 2398	Upper Rear Duct Seal	1
5	AA15 2395	Rear Duct Seal	1
6	AA15 2396	Seal - 6x272x5	1
7	AA15 2397	Seal - 6x185x5	1
8	A294 3913	Heat Resistance Sheet	1
9	A096 3956	Heater Cover	1
10	AA07 0050	Slide Rail	1
11	A294 3911	Support Plate	1
12	A096 4944	Harness Clamp	3
13	A294 5479	Relay Harness - Transfer Belt	1
14	AX40 0048	Anticondensation Heater - 230V 15W	1
15	A294 3918	Positioning Plate	1
16	A096 3960	Belt Unit Knob	1
17	A294 3920	Support Plate	1
18	A096 3959	Release Arm	1
19	**A294 2114**	**Toner Filter**	**1**
20	A294 2112	Guide - Dust Filter	1
21	A294 1083	Frame Chanel	1
22	A294 1842	Rear Grounding Plate	3
23	A294 1993	Ground Plate	1
24	AA08 0158	Arm Bushing	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0434 0060B	Pan Head Self-tapping Screw - M4x6	
103	0451 3006B	Tapping Screw - M3x6	
104	1105 0291	Harness Clamp - LWS-3S	
105	0950 4008B	Philips Screw With Spring Washer - M4x8	
106	1105 0310	Harness Clamp - LWS-1S	

71.FRAME SECTION 4 (A294)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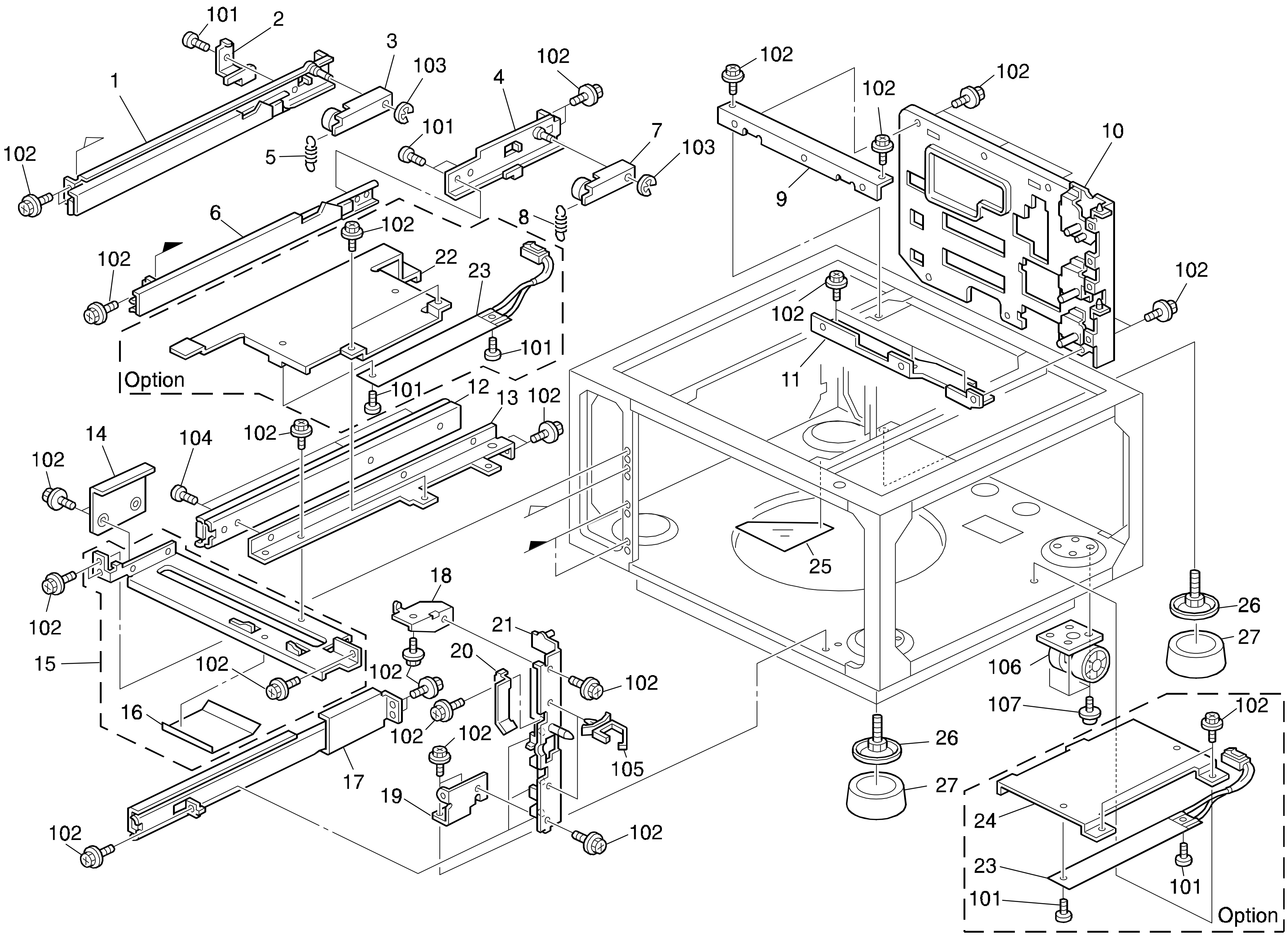
71.FRAME SECTION 4 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A294 1077	Front Right Fixing Plate	2
2	A294 1099	Right Holder	4
3	A294 1076	Front Left Fixing Plate	2
4	A294 4881	Slide Rail Stay - Right Rear	1
5	AA07 0048	Duplex Slide Rail	1
6	A294 1080	Channel Bracket - Center Front	1
7	A294 1195	Right Fixing Plate	1
8	A294 1041	Right Lower Stay	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0451 4008B	Philips Tapping Screw - M4x8	
102	0434 0080B	Pan Head Self-tapping Screw - M4x8	

72.FRAME SECTION 5 (A294)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72.FRAME SECTION 5 (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A248 6241	Left Rail - Tandem LCT	1
2	A096 6246	Left Rail Bracket	1
3	A096 6247	Lock Arm - Tandem Tray	1
4	A247 6264	Stay - Left Rail	1
5	AA06 0761	Spring	1
6	A247 6262	Left Slide Rail	1
7	A096 6266	Tray Lock Arm	1
8	AA06 0534	Tray Lock Spring - 19mm	1
9	A294 1039	Rear Upper Fixing Plate	1
10	A294 6155	Rear Side Plate	1
11	A294 1040	Rear Lower Fixing Plate	1
12	AA07 0044	Slide Rail - Tandem LCT	1
13	A248 6774	Slide Rail Bracket	1
14	A248 6775	Supporting Stay	1
15	A248 6776	Stay - Tandem Tray	1
16	AA15 0406	Seal - Misfeed Removal	1
17	A247 6250	Paper Trai Rail	1
18	A294 1037	Front Upper Fixing Plate	1
19	A294 1038	Front Lower Fixing Plate	1
20	A176 6110	Harness Cover	1
21	A294 6181	Front Side Plate	1
22	A248 6102	Upper Heat Sink	1
23	AX40 0111	Anticondenation Heater - 230V 18W	2
24	A096 6100	Lower Heat Sink	1
25	A096 6693	Paper Guide Sheet	1
26	5424 1064	Screw Stand	4
27	AH01 3002	Leveling Shoe	4

Index No.	Part No.	Description	Q'ty Per Assembly
101	0314 0060B	Philips Pan Head Screw - M4x6	
102	0451 4008B	Philips Tapping Screw - M4x8	
103	0720 0040B	Retaining Ring - M4	
104	0314 0040B	Philips Pan Head Screw - M4x4	
105	1105 0310	Harness Clamp - LWS-1S	
106	0805 5011	Caster - 250kgf	
107	0951 5008B	Philips Screw With Washer - M5x8	

73.MAINCONTROL BOARD (A294)

CAPACITOR

SYMBOL NO.	INDEX NO.
C 101	136
C 102	166
C 103	166
C 104	166
C 105	166
C 106	165
C 107	167
C 108	137
C 109	166
C 110	173

SYMBOL NO.	INDEX NO.
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C 115	170
C 116	173
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C 118	170
C 119	169
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SYMBOL NO.	INDEX NO.
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C 127	----
C 128	172
C 129	173
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C 164	173
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C 167	172
C 168	172
C 169	139
C 170	173

CAPACITOR

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SYMBOL NO.	INDEX NO.
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C 187	173
C 188	173

CONNECTOR

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CN 560	107
CN 561	102

DA

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DA102	116
DA103	116

FUSE

SYMBOL NO.	INDEX NO.
FU101	110

IC

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IC103	119
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IC105	126
IC106	126
IC107	120
IC108	123
IC109	122
IC110	119

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IC116	131
IC117	130
IC118	129
IC119	127

73.MAINCONTROL BOARD (A294)

OSC

SYMBOL NO.	INDEX NO.
OSC101	132

Q

SYMBOL NO.	INDEX NO.
Q 101	115
Q 102	112
Q 103	112
Q 104	112
Q 105	112
Q 106	115
Q 107	112
Q 108	113
Q 109	112
Q 110	114

SYMBOL NO.	INDEX NO.
Q 111	112
Q112	113
Q113	112
Q114	112

JP

SYMBOL NO.	INDEX NO.
JP101	158

RESISTOR

SYMBOL NO.	INDEX NO.
R 101	141
R 102	141
R 103	133
R 104	140
R 105	133
R 106	140
R 107	155
R 108	145
R 109	163
R 110	153

SYMBOL NO.	INDEX NO.
R 111	155
R 112	----
R 113	145
R 114	143
R 115	144
R 116	155
R 117	145
R 118	142
R 119	154
R 120	142

SYMBOL NO.	INDEX NO.
R 121	142
R 122	149
R 123	149
R 124	144
R 125	145
R 126	155
R 127	143
R 128	----
R 129	145
R 130	----

SYMBOL NO.	INDEX NO.
R 131	154
R 132	145
R 133	145
R 134	148
R 135	142
R 136	145
R 137	142
R 138	155
R 139	143
R 140	149

RESISTOR

SYMBOL NO.	INDEX NO.
R 141	144
R 142	145
R 143	145
R 144	145
R 145	----
R 146	155
R 147	149
R 148	143
R 149	144
R 150	154

SYMBOL NO.	INDEX NO.
R 151	149
R 152	159
R 153	150
R 154	157
R 155	----
R 156	145
R 157	154
R 158	159
R 159	159
R 160	145

SYMBOL NO.	INDEX NO.
R 161	145
R 162	148
R 163	145
R 164	155
R 165	159
R 166	159
R 167	143
R 168	145
R 169	----
R 170	159

SYMBOL NO.	INDEX NO.
R 171	156
R 172	148
R 173	155
R 174	153
R 175	145
R 176	----
R 177	151
R 178	157
R 179	154
R 180	150

SYMBOL NO.	INDEX NO.
R 181	154
R 182	155
R 183	155
R 184	----
R 185	154
R 186	155
R 187	155
R 188	145
R 189	153
R 190	143

SYMBOL NO.	INDEX NO.
R 191	154
R 192	145
R 193	155
R 194	155
R 195	145
R 196	155
R 197	145
R 198	154
R 199	145
R 200	145

SYMBOL NO.	INDEX NO.
R 201	155
R 202	145
R 203	155
R 204	155
R 205	154
R 206	152
R 207	153
R 208	163
R 209	144
R 210	146

73.MAINCONTROL BOARD (A294)

RESISTOR

SYMBOL NO.	INDEX NO.
R 211	164
R 212	145
R 213	144
R 214	143
R 215	159
R 216	162
R 217	147
R 218	----
R 219	143
R 220	159

SYMBOL NO.	INDEX NO.
R 221	159
R 222	161
R 223	----
R 224	149
R 225	147
R 226	159
R 227	144
R 228	159
R 229	160
R 230	152

SYMBOL NO.	INDEX NO.
R 231	154
R 232	149
R 233	159
R 234	154
R 235	154
R 236	152
R 237	155
R 238	155
R 239	154
R 240	143

SYMBOL NO.	INDEX NO.
R 241	145
R 242	154
R 243	150
R 244	155
R 245	155
R 246	153
R 247	154
R 248	144
R 249	155
R 250	155

SYMBOL NO.	INDEX NO.
R 251	144
R 252	154
R 253	143
R 254	155
R 255	155
R 256	149
R 257	145
R 258	----
R 259	149
R 260	145

RN

SYMBOL NO.	INDEX NO.
RN 101	134
RN 102	134
RN 103	134
RN 104	134
RN 105	134
RN 106	135
RN 107	134
RN 108	134
RN 109	134

SWITCH

SYMBOL NO.	INDEX NO.
SW101	111

TEST POINT

SYMBOL NO.	INDEX NO.
TP 132	101
TP 134	101
TP 136	101

ZD

SYMBOL NO.	INDEX NO.
ZD 101	117

73.MAINCONTROL BOARD (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 5053	MCU Board	1
1	A294 5057	PRON - MCU	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	1101 0328	Connector Pin Contact	
102	1102 5301	Connector - 2P	
103	1102 5302	Connector - 3P	
104	1102 5305	Connector - 6P	
105	1102 5325	Connector - 2P	
106	1102 6298	Connector - 5P	
107	1102 6300	Connector - 7P	
108	1102 6307	Connector - 14P	
109	1102 6314	CONNECTOR - 7P	
110	1109 0010	FUSE - 3.75A	
111	1204 2368	Dip Switch - DSS804	
112	1400 0398	Transistor - 2SC2412K	
113	1401 0881	Transistor - 2SJ142	
114	1401 0972	Transistor - 2SB1260	
115	1401 1113	FET 2SK2462	
116	1402 1142	Diode Array - DAN217	
117	1402 1380	Diode - PTZ 6.2A	
118	1403 0954	Sensor - MA12-10V23	
119	1407 1596	TTLIC - SN74LS14NS	
120	1407 1741	TTL - SN74LS32NS	
121	1407 1783	IC - 74LS02	
122	1407 1880	TTLIC - SN74LS04NS	
123	1407 1984	IC - SH74LS123NS	
124	1407 2051	TTL - IC - SN74LS00NS	
125	1407 2052	TTLIC - SN74LS74ANS	
126	1407 2187	TTLIC - SN74LS07NS	
127	1407 4137	IC - MM1035XF	
128	1408 0565	IC - UPC311G	
129	1408 0645	IC - UPC4570G	
130	1408 0942	IC - BA4558F	
131	1408 1065	Comparator Ba10339f	
132	1503 0817	Osicrrator - 15.9744MHZ	
133	1600 1510	Resistor - 1.5K Ω ±5% 1W	
134	1601 7759	Resistor Array - 100K Ω ±5% 0.063W	
135	1601 7791	Resistor Array - 1K Ω ±5%	

Index No.	Part No.	Description	Q'ty Per Assembly
136	1604 4734	Capacitor - 47uF ±20% 25V	
137	1604 4735	Capacitor - 1000uF ±20% 50V	
138	1605 0599	Capacitor - 0.1µF±10%	
139	1605 0643	Capacitor - 0.1MICRO F	
140	1611 9331	Resistor - 330 Ω ±5% 1/2W	
141	1611 9621	Resistor - 620 Ω ±5% 1/2W	
142	1630 4100	Resistor - 10 Ω ±5% 1/16W	
143	1630 4102	Resistor - 1.0KΩ ±5% 1/16W	
144	1630 4103	Resistor - 10KΩ ±5% 1/16W	
145	1630 4104	Resistor - 100 Ω ±5% 1/16W	
146	1630 4124	Resistor - 120K Ω ±5%1/16W	
147	1630 4153	Resistor - 15KΩ ±5% 1/16W	
148	1630 4161	Resistor - 160 Ω ±5% 1/16W	
149	1630 4222	Resistor - 2.2K Ω ±5%	
150	1630 4224	Resistor - 220K Ω ±5% 1/16W	
151	1630 4242	Registor - 2.4k Ω - ±5% - 1/16W	
152	1630 4332	Resistor - 3.3K Ω ±5% 1/16W	
153	1630 4470	Resistor - 470 Ω ±5% 1/16W	
154	1630 4472	Resistor - 4.7KΩ ±5% 1/16W	
155	1630 4511	Registor - 510 Ω - ±5% - 1/16W	
156	1630 4512	Registor - 5.1k Ω - ±5% - 1/16W	
157	1630 4562	Registor - 5.6k Ω - ±5% - 1/16W	
158	1634 0000	Resistor - 0 Ω 1/16W	
159	1634 1002	Resistor - 10 Ω ±5% 1/16W	
160	1634 2002	Resistor - 20K Ω ±1% 1/16W	
161	1634 2402	Resistor - 24K Ω ±1% 1/16W	
162	1634 2702	Resistor - 27KΩ ±1% 1/16W	
163	1634 3903	Registor - 390k Ω - ±1% - 1/16W	
164	1634 4302	Resistor - 43k Ω ±1% 1/16W	
165	1640 0101	Capacitor - 100µF10V	
166	1640 2470	Capacitor - 47µF±20% 25V	
167	1640 5101	Capacitor - 100µF±20% 50V	
168	1660 0100	Capacitor - 10PF ±0.5pF 50V	
169	1660 2101	Capacitor - 100pF - ±10% - 50V	
170	1660 2471	Capacitor - 470pF - ±5% - 50V	

Index No.	Part No.	Description	Q'ty Per Assembly
171	1660 3102	Capacitor - 1000pF ±5% 50V	
172	1660 4102	Capacitor - 1000pF ±10% 50V	
173	1660 6103	Capacitor - 10000pF - +80% -20% 50V	
174	1660 8104	Capacitor - 0.1µF+80-20% 25V	

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CAPACITOR

SYMBOL NO.	INDEX NO.
C 601	237
C 602	183
C 603	182
C 604	239
C 605	248
C 606	182
C 607	184
C 608	240
C 609	241
C 610	241

SYMBOL NO.	INDEX NO.
C 611	249
C 612	249
C 613	248
C 614	249
C 615	248
C 616	248
C 617	248
C 618	248
C 619	248
C 620	248

SYMBOL NO.	INDEX NO.
C 621	249
C 622	248
C 623	249
C 624	249
C 625	247
C 626	249
C 627	249
C 628	248
C 629	249
C 630	249

SYMBOL NO.	INDEX NO.
C 631	245
C 632	247
C 633	249
C 634	249
C 635	249
C 636	185
C 637	237
C 638	249
C 639	249
C 640	249

SYMBOL NO.	INDEX NO.
C 641	248
C 642	249
C 643	249
C 644	249
C 645	248
C 646	248
C 647	238
C 648	238
C 649	249
C 650	236

SYMBOL NO.	INDEX NO.
C 651	236
C 652	238
C 653	237
C 654	248
C 655	238
C 656	184
C 657	248
C 658	245
C 659	248
C 660	248

SYMBOL NO.	INDEX NO.
C 661	248
C 662	248
C 663	248
C 664	248
C 665	248
C 666	248
C 667	245
C 668	248
C 669	248
C 670	248

CAPACITOR

SYMBOL NO.	INDEX NO.
C 671	248
C 672	248
C 673	248
C 674	248
C 675	248
C 676	248
C 677	247
C 678	245
C 679	249
C 680	248

SYMBOL NO.	INDEX NO.
C 681	248
C 682	247
C 683	248
C 684	248
C 685	249
C 686	248
C 687	249
C 688	249
C 689	245
C 690	248

SYMBOL NO.	INDEX NO.
C 691	249
C 692	249
C 693	249
C 694	249
C 695	247
C 696	247
C 697	249
C 698	249
C 699	249
C 700	245

SYMBOL NO.	INDEX NO.
C 701	249
C 702	248
C 703	241
C 704	245
C 705	248
C 706	241
C 707	249
C 708	248
C 709	241
C 710	248

SYMBOL NO.	INDEX NO.
C 711	249
C 712	248
C 713	249
C 714	248
C 715	248
C 716	248
C 717	248
C 718	249
C 719	248
C 720	249

SYMBOL NO.	INDEX NO.
C 721	249
C 722	249
C 723	249
C 724	249
C 725	247
C 726	249
C 727	249
C 728	245
C 729	248
C 730	247

SYMBOL NO.	INDEX NO.
C 731	248
C 732	248
C 733	248
C 734	249
C 735	249
C 736	248
C 737	248
C 738	248
C 739	248
C 740	249

74.BCU BOARD (A294)

CAPACITOR

SYMBOL NO.	INDEX NO.
C 741	249
C 742	247
C 743	249
C 744	249
C 745	249
C 746	249
C 747	249
C 748	249
C 749	249
C 750	248

SYMBOL NO.	INDEX NO.
C 751	249
C 752	249
C 753	249
C 754	245
C 755	249
C 756	249
C 757	249
C 758	249
C 759	249
C 760	249

SYMBOL NO.	INDEX NO.
C 761	249
C 762	244
C 763	243
C 764	242
C 765	249
C 766	248
C 767	245
C 768	248
C 769	245
C 770	245

SYMBOL NO.	INDEX NO.
C 771	249
C 772	248
C 773	249
C 774	245
C 775	249
C 776	249
C 777	246
C 778	249
C 779	245
C 780	242

SYMBOL NO.	INDEX NO.
C 781	242
C 782	249
C 783	248
C 784	249
C 785	245
C 786	249
C 787	248
C 788	248
C 789	249
C 790	248

SYMBOL NO.	INDEX NO.
C 791	249
C 792	249
C 793	248
C 794	248
C 795	249
C 796	249
C 797	249
C 798	245
C 799	248
C 800	249

SYMBOL NO.	INDEX NO.
C 801	249
C 802	249
C 803	249
C 804	249
C 805	249
C 806	249
C 807	248
C 808	248
C 809	249
C 810	248

CAPACITOR

SYMBOL NO.	INDEX NO.
C 811	248
C 812	245
C 813	248
C 814	248
C 815	248
C 816	248
C 817	248
C 818	248
C 819	248
C 820	248

SYMBOL NO.	INDEX NO.
C 821	248
C 822	248
C 823	248
C 824	248
C 825	245
C 826	249

CONNECTOR

SYMBOL NO.	INDEX NO.
CN 601	122
CN 602	119
CN 603	121
CN 604	114
CN 605	121
CN 606	104
CN 607	115
CN 608	107
CN 609	109
CN 610	118

SYMBOL NO.	INDEX NO.
CN 611	121
CN 612	102
CN 613	120
CN 614	106
CN 615	105
CN 616	118
CN 617	113
CN 618	112
CN 619	108
CN 620	108

SYMBOL NO.	INDEX NO.
CN 621	108
CN 622	110
CN 623	118
CN 624	115
CN 625	103
CN 626	117
CN 627	116

DA

SYMBOL NO.	INDEX NO.
DA 601	137
DA 602	135
DA 603	135
DA 604	135
DA 605	133
DA 606	133
DA 607	135
DA 608	135
DA 609	135
DA 610	133

DIODE

SYMBOL NO.	INDEX NO.
D 601	136
D 602	134
D 603	138
D 604	138

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FUSE

SYMBOL NO.	INDEX NO.
FU 601	126
FU 602	126

IC

SYMBOL NO.	INDEX NO.
IC 601	169
IC 602	163
IC 603	149
IC 604	149
IC 605	166
IC 606	164
IC 607	164
IC 608	149
IC 609	151
IC 610	149
IC 611	156
IC 612	159
IC 613	169
IC 614	1
IC 615	157
IC 616	149
IC 617	163
IC 618	148
IC 619	156
IC 620	149
IC 621	149
IC 622	160
IC 623	156
IC 624	169
IC 625	156
IC 626	161
IC 627	162
IC 628	149
IC 629	146
IC 630	149
IC 631	147
IC 632	149
IC 633	155
IC 634	124
IC 635	152
IC 636	147
IC 637	147
IC 638	168
IC 639	154
IC 640	153
IC 641	149
IC 642	2
IC 643	1
IC 644	165
IC 645	165
IC 646	165
IC 647	165
IC 648	158
IC 649	146
IC 650	146
IC 651	149

JP

SYMBOL NO.	INDEX NO.
JP 602	221

LED

SYMBOL NO.	INDEX NO.
LED 601	----
LED 602	----

OSC

SYMBOL NO.	INDEX NO.
OSC 601	171
OSC 602	172

Q

SYMBOL NO.	INDEX NO.
Q 601	132
Q 602	127
Q 603	145
Q 604	145
Q 605	150
Q 606	127
Q 607	167
Q 608	150
Q 609	131
Q 610	170
Q 611	150
Q 612	150
Q 613	150
Q 614	130
Q 615	150
Q 616	127
Q 617	128
Q 618	128
Q 619	129
Q 620	129
Q 621	129
Q 622	129
Q 623	129
Q 624	129
Q 625	128
Q 626	129
Q 627	128
Q 628	129
Q 629	127

74.BCU BOARD (A294)

RESISTOR

SYMBOL NO.	INDEX NO.
R 601	211
R 602	190
R 603	190
R 604	190
R 605	190
R 606	173
R 607	173
R 608	174
R 609	173
R 610	173

SYMBOL NO.	INDEX NO.
R 611	199
R 612	199
R 613	210
R 614	200
R 615	215
R 616	208
R 617	217
R 618	207
R 619	198
R 620	216

SYMBOL NO.	INDEX NO.
R 621	199
R 622	200
R 623	234
R 624	218
R 625	199
R 626	198
R 627	208
R 628	233
R 629	129
R 630	199

SYMBOL NO.	INDEX NO.
R 631	201
R 632	190
R 633	190
R 634	191
R 635	215
R 636	188
R 637	190
R 638	190
R 639	200
R 640	199

SYMBOL NO.	INDEX NO.
R 641	228
R 642	225
R 643	206
R 644	199
R 645	201
R 646	215
R 647	205
R 648	198
R 649	200
R 650	199

SYMBOL NO.	INDEX NO.
R 651	229
R 652	206
R 653	226
R 654	200
R 655	195
R 656	201
R 657	200
R 658	222
R 659	200
R 660	227

SYMBOL NO.	INDEX NO.
R 661	199
R 662	199
R 663	199
R 664	199
R 665	199
R 666	194
R 667	215
R 668	199
R 669	200
R 670	215

RESISTOR

SYMBOL NO.	INDEX NO.
R 671	199
R 672	215
R 673	199
R 674	190
R 675	199
R 676	215
R 677	200
R 678	199
R 679	200
R 680	200

SYMBOL NO.	INDEX NO.
R 681	215
R 682	200
R 683	220
R 684	190
R 685	223
R 686	224
R 687	190
R 688	223
R 689	223
R 690	200

SYMBOL NO.	INDEX NO.
R 691	220
R 692	223
R 693	199
R 694	224
R 695	190
R 696	200
R 697	223
R 698	190
R 699	200
R 700	223

SYMBOL NO.	INDEX NO.
R 701	200
R 702	199
R 703	224
R 704	199
R 705	208
R 706	199
R 707	200
R 708	200
R 709	216
R 710	200

SYMBOL NO.	INDEX NO.
R 711	216
R 712	216
R 713	216
R 714	196
R 715	216
R 716	216
R 717	215
R 718	215
R 719	215
R 720	200

SYMBOL NO.	INDEX NO.
R 721	215
R 722	207
R 723	217
R 724	200
R 725	215
R 726	200
R 727	200
R 728	215
R 729	215
R 730	200

SYMBOL NO.	INDEX NO.
R 731	216
R 732	216
R 733	208
R 734	215
R 735	216
R 736	216
R 737	198
R 738	193
R 739	203
R 740	212

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RESISTOR

SYMBOL NO.	INDEX NO.
R 741	217
R 742	198
R 743	217
R 744	207
R 745	215
R 746	208
R 747	207
R 748	215
R 749	215
R 750	216

SYMBOL NO.	INDEX NO.
R 751	200
R 752	215
R 753	208
R 754	216
R 755	215
R 756	215
R 757	200
R 758	215
R 759	199
R 760	198

SYMBOL NO.	INDEX NO.
R 761	199
R 762	207
R 763	199
R 764	196
R 765	230
R 766	215
R 767	198
R 768	199
R 769	199
R 770	199

SYMBOL NO.	INDEX NO.
R 771	217
R 772	198
R 773	200
R 774	215
R 775	208
R 776	200
R 777	199
R 778	208
R 779	202
R 780	199

SYMBOL NO.	INDEX NO.
R 781	215
R 782	206
R 783	206
R 784	215
R 785	199
R 786	208
R 787	197
R 788	214
R 789	219
R 790	219

SYMBOL NO.	INDEX NO.
R 791	199
R 792	199
R 793	200
R 794	211
R 795	199
R 796	210
R 797	232
R 798	200
R 799	189
R 800	206

SYMBOL NO.	INDEX NO.
R 801	231
R 802	199
R 803	206
R 804	200
R 805	234
R 806	235
R 807	213
R 808	215
R 809	204
R 810	199

RESISTOR

SYMBOL NO.	INDEX NO.
R 811	199
R 812	199
R 813	208
R 814	199
R 815	200
R 816	199
R 817	209
R 818	200
R 819	199
R 820	199

SYMBOL NO.	INDEX NO.
R 821	218
R 822	200
R 823	215
R 824	200
R 825	200
R 826	215
R 827	200
R 828	200
R 829	215
R 830	200

SYMBOL NO.	INDEX NO.
R 831	200
R 832	199
R 833	199
R 834	200
R 835	208
R 836	199
R 837	200
R 838	200
R 839	199
R 840	200

SYMBOL NO.	INDEX NO.
R 841	199
R 842	199
R 843	199
R 844	200
R 845	200
R 846	200
R 847	199
R 848	200
R 849	199
R 850	200

SYMBOL NO.	INDEX NO.
R 851	215
R 852	215
R 853	215
R 854	215
R 855	215
R 856	215
R 857	217
R 858	207
R 859	215
R 860	198

SYMBOL NO.	INDEX NO.
R 861	198
R 862	198
R 863	207
R 864	205
R 865	205
R 866	217
R 867	215
R 868	215
R 869	208
R 870	215

SYMBOL NO.	INDEX NO.
R 871	216

RN

SYMBOL NO.	INDEX NO.
RN 601	175
RN 602	181
RN 603	178
RN 604	178
RN 605	181
RN 606	175
RN 607	175
RN 608	181
RN 609	178
RN 610	175

SYMBOL NO.	INDEX NO.
RN 611	181
RN 612	178
RN 613	179
RN 614	179
RN 615	178
RN 616	181
RN 617	175
RN 618	176
RN 619	178
RN 620	181

SYMBOL NO.	INDEX NO.
RN 621	175
RN 622	178
RN 623	181
RN 624	175
RN 625	176
RN 626	178
RN 627	181
RN 628	175
RN 629	178
RN 630	181

SYMBOL NO.	INDEX NO.
RN 631	175
RN 632	175
RN 633	177
RN 634	177
RN 635	177
RN 636	177
RN 637	177
RN 638	176
RN 639	177
RN 640	180

SYMBOL NO.	INDEX NO.
RN 641	180
RN 642	180
RN 643	180
RN 644	177
RN 645	178
RN 646	181
RN 647	175
RN 648	176
RN 649	178
RN 650	181

SYMBOL NO.	INDEX NO.
RN 651	175
RN 652	176
RN 653	175
RN 654	181
RN 655	178
RN 656	175
RN 657	181
RN 658	178

TB

SYMBOL NO.	INDEX NO.
TB 601	111
TB 602	123
(Socket)	125
TB 603	123

TEST POINT

SYMBOL NO.	INDEX NO.
TP 607	101
TP 647	101
TP 679	101

V

SYMBOL NO.	INDEX NO.
V 601	144
V 602	144

ZD

SYMBOL NO.	INDEX NO.
ZD 601	139
ZD 602	139
ZD 603	140
ZD 604	140
ZD 605	141

74.BCU BOARD (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 5261	BCU Board	1
1	A232 5355	IC - GATEX	1
2	A232 5371	MPU CSS	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	1101 0429	Test Pin	
102	1102 3822	Connector - 20P	
103	1102 5276	Connector - 4P	
104	1102 5278	Connector - 6P	
105	1102 5280	Connector - 8P	
106	1102 5283	Connector - 11P	
107	1102 5326	Connector - 4P	
108	1102 5476	Modular Cord - 6P/6P	
109	1102 5699	Connector - 12P	
110	1102 5894	Connector - 68P	
111	1102 5943	Connector - 2P	
112	1102 6297	Connector - 4P	
113	1102 6299	Connector - 6P	
114	1102 6302	Connector - 9P	
115	1102 6308	Connector - 15P	
116	1102 6396	Connector - 1P	
117	1102 6397	Box Header	
118	1102 6398	Connector - 2P	
119	1102 6399	Connector - 22P	
120	1102 6400	Connector - 24P	
121	1102 6403	Connector - 30P	
122	1102 6414	Connector - 16P	
123	1102 6760	Connector - 3P	
124	1104 0588	Dip Socket - 28P	
125	1104 0730	Short Pin - 2P	
126	1109 0007	IC - MINISMDC100-02	
127	1400 0398	Transistor - 2SC2412K	
128	1400 0555	Transistor - DTC143EK	
129	1400 0619	Transistor - DTA143EKA	
130	1400 0728	Transistor - 2SD2170	
131	1400 0731	Transistor - 2SD1766	
132	1401 0972	Transistor-2sb1260	
133	1402 0595	Diode-array - DAN202K	
134	1402 1112	Diode - ERA83-004	
135	1402 1142	Diode Array - DAN217	

74.BCU BOARD (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
136	1402 1236	Diode - ERA83-006	
137	1402 1326	Diode Array - DA227	
138	1402 1336	Diode - 1SS355	
139	1402 1378	Diode - PTZ12A	
140	1402 1380	Diode - PTZ 6.2A	
141	1402 1505	Diode - UDZS5.6B	
142	1403 0894	LED SML-010LT	
143	1403 0895	LED SML-010MT	
144	1404 0238	Serge Absorber 22V 0.6J	
145	1407 1535	IC - TD62308AP	
146	1407 1596	TTLIC - SN74LS14NS	
147	1407 2052	TTLIC - SN74LS74ANS	
148	1407 2134	TTLIC - 74F32SJ	
149	1407 2187	TTLIC - SN74LS07NS	
150	1407 2231	IC - TD62308AF	
151	1407 3231	FIFO - M66300FP	
152	1407 3257	CMOSIC - TC74HC14AF	
153	1407 3281	IC - TC74HCU04AF	
154	1407 4114	IC - SN751177	
155	1407 4164	IC - MMID75XF	
156	1407 4300	IC - TC74VHC32F	
157	1407 4321	IC - TC74VHC04F	
158	1407 4404	CMOS 74VHC157 SOP	
159	1407 4615	IC - TC74VHC02F	
160	1407 4718	IC - TC74VHC08F	
161	1407 4959	IC - MC68334GCFC20	
162	1407 5032	IC - MBM29F400TC-70pFTN	
163	1407 5085	CMOS TC4066BF(N)	
164	1407 5127	IC SLA7033M	
165	1408 0826	IC - TA8428K	
166	1408 0827	IC - TA8429H	
167	1408 0875	Transistor-array - TD62382AF	
168	1408 1065	Comparator Ba10339f	
169	1408 1095	IC - BA10324AF	
170	1408 1206	Transistor-array - TD62M4700F	

Index No.	Part No.	Description	Q'ty Per Assembly
171	1503 0460	Oscillator - 32.768KHZ	
172	1503 0865	Oscillator - 9.8304MHZ	
173	1600 1774	Resistor - 0.68 Ω ±5%	
174	1601 5277	Resistor - 3.9 Ω ±5% 2W	
175	1601 7751	Resistor - 4.7KΩ ±5%	
176	1601 7752	Resistor Array - 10K Ω ±5%	
177	1601 7769	Resistor Array - 151 Ω ±5%	
178	1601 7781	Resistor - 10 Ω ±5%	
179	1601 7791	Resistor Array - 1K Ω ±5%	
180	1601 7814	Resistor 3.3k Ω ±5%	
181	1601 7870	Resistor - 15 Ω ±5% 1/16W	
182	1604 4506	Capacitor - 1000µF±20% 50V	
183	1604 4708	Capacitor - 10µF±20% 50V	
184	1604 4730	Capacitor - 47µF±20% 50V	
185	1605 0926	Capacitor - 0.33µF16V ±10%	
186	1607 0758	Filter - DSS710D223A12-22	
187	1607 1040	Filter - ACB1608M-120	
188	1630 1101	Resistor - 100 Ω 1/4W ±5%	
189	1630 1121	Resistor - 120Ω±5% 1/8W	
190	1630 1151	Resistor - 150 Ω ±5% 1/4W	
191	1630 1392	Resistor - 3.9K Ω ±5% 1/4W	
192	1630 1471	Resistor - 470 Ω ±5% 1/4W	
193	1630 2471	Resistor - 470Ω 1/8W ±5%	
194	1630 3102	Resistor - 1KΩ 1/10W ±5%	
195	1630 3121	Resistor - 120 Ω ±5% 1/10w	
196	1630 3561	Resistor - 560 Ω ±5% 1/10W	
197	1630 3563	Resistor - 56K Ω ±5% 1/10W	
198	1630 4100	Resistor - 10 Ω ±5% 1/16W	
199	1630 4102	Resistor - 1.0KΩ ±5% 1/16W	
200	1630 4103	Resistor - 10KΩ ±5% 1/16W	
201	1630 4104	Resistor - 100 Ω ±5% 1/16W	
202	1630 4105	Resistor - 1.0MΩ ±5% 1/16W	
203	1630 4106	Resistor - 10m Ω ±5% 1/16W	
204	1630 4152	Resistor - 1.5K Ω ±5% 1/16W	
205	1630 4153	Resistor - 15KΩ ±5% 1/16W	

74.BCU BOARD (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
206	1630 4154	Registor - 150kΩ ±5%,1/16w	
207	1630 4161	Resistor - 160 Ω ±5% 1/16W	
208	1630 4222	Resistor - 2.2K Ω ±5%	
209	1630 4272	Registor - 2.7k Ω - ±5% - 1/16w	
210	1630 4330	Resistor - 33 Ω ±5% 1/8W	
211	1630 4332	Resistor - 3.3K Ω ±5% 1/16W	
212	1630 4334	Resistor - 330K Ω ±5% 1/16W	
213	1630 4362	Resistor - 3.6K Ω ±5% 1/16W	
214	1630 4393	Registor - 39k Ω - ±5% - 1/16w	
215	1630 4472	Resistor - 4.7KΩ ±5% 1/16W	
216	1630 4510	Resistor - 51 Ω ±5% 1/16W	
217	1630 4562	Registor - 5.6k Ω - ±5% - 1/16W	
218	1630 4680	Resistor - 68 Ω ±5% 1/16W	
219	1630 4752	Resistor - 7.5K Ω ±5%1/16W	
220	1630 4910	Registor - 91 Ω ±5% 1/16W	
221	1632 0000	Resistor - 0 Ω 1/8W	
222	1633 1000	Resistor - 100Ω±1% 1/10W	
223	1633 1003	Resistor - 100K Ω ±1% 1/10W	
224	1633 1403	Resistor - 140K Ω ±1% 1/10W	
225	1633 2002	Resistor - 20K Ω ±1% 1/10W	
226	1633 2200	Registor - 220 Ω ±1% 1/10w	
227	1633 5100	Resistor - 510 Ω ±1%1/10W	
228	1633 5361	Resistor - 5.36K Ω ±1%1/10W	
229	1633 5600	Resistor - 560 Ω ±1% 1/10W	
230	1634 1693	Resistor - 169 Ω ±1% 1/16W	
231	1634 2201	Resistor - 2.20K Ω ±1% 1/16W	
232	1634 3301	Resistor - 3.3K Ω ±1% 1/16W	
233	1634 4702	Registor - 47.0k Ω - ±1% - 1/16W	
234	1634 5231	Resistor - 5.23K Ω ±1% 1/16W	
235	1634 6200	Resistor - 620 Ω ±1% 1/16W	
236	1640 5100	Capacitor - 10µF+20% 50	
237	1640 5101	Capacitor - 100µF±20% 50V	
238	1640 5220	Capacitor - 22µF±20% 50V	
239	1640 5221	Capacitor - 220µF±20% 50V	
240	1640 5470	Capacitor - 47µF±20% 50V	

Index No.	Part No.	Description	Q'ty Per Assembly
241	1660 2101	Capacitor - 100pF - ±10% - 50V	
242	1660 2180	Capacitor 18pF ±5% 50v	
243	1660 2220	Capacitor - 22pF ±20% 35V	
244	1660 2470	Capacitor - 47pF ±5% 50V	
245	1660 2471	Capacitor - 470pF - ±5% - 50V	
246	1660 4102	Capacitor - 1000pF ±10% 50V	
247	1660 4472	Capacitor - 4700pF±10% 50v	
248	1660 6103	Capacitor - 10000pF - +80% -20% 50V	
249	1660 8104	Capacitor - 0.1µF+80-20% 25V	
250	1902 0039	IC - SRAM 1M X16 70NS G1	
251	1407 4730	SRAM STK12C68-W45	

75.IO BOARD (A294)

CAPACITOR

SYMBOL NO.	INDEX NO.
C 501	137
C 502	137
C 503	137
C 504	137
C 505	137
C 506	141
C 507	139
C 508	139
C 509	139
C 510	139

SYMBOL NO.	INDEX NO.
C 511	139
C 512	139
C 513	139
C 514	139
C 515	141
C 516	141
C 517	141
C 518	139
C 519	139
C 520	139

SYMBOL NO.	INDEX NO.
C 521	139
C 522	139
C 523	139
C 524	139
C 525	139
C 526	141
C 527	139
C 528	139
C 529	139
C 530	139

SYMBOL NO.	INDEX NO.
C 531	139
C 532	139
C 533	139
C 534	139
C 535	141
C 536	139
C 537	139
C 538	139
C 539	139
C 540	139

SYMBOL NO.	INDEX NO.
C 541	139
C 542	139
C 543	139
C 544	141
C 545	141
C 546	139
C 547	139
C 548	139
C 549	139
C 550	139

SYMBOL NO.	INDEX NO.
C 551	139
C 552	139
C 553	139
C 554	141
C 555	141
C 556	138
C 557	141
C 558	141
C 559	141
C 560	141

SYMBOL NO.	INDEX NO.
C 561	140
C 562	140
C 563	141
C 564	141

CONNECTOR

SYMBOL NO.	INDEX NO.
CN 501	104
CN 502	115
CN 503	103
CN 504	102
CN 505	108
CN 506	109
CN 507	111
CN 508	114
CN 509	106
CN 510	113

SYMBOL NO.	INDEX NO.
CN 511	112
CN 512	110
CN 513	105
CN 514	107
CN 515	108
CN 516	114

DA

SYMBOL NO.	INDEX NO.
DA 501	117
DA 502	117
DA 503	117
DA 504	117
DA 505	117
DA 506	117
DA 507	117
DA 508	117
DA 509	117
DA 510	117

SYMBOL NO.	INDEX NO.
DA 511	117
DA 512	117

IC

SYMBOL NO.	INDEX NO.
IC 501	122
IC 502	122
IC 503	122
IC 504	122
IC 505	122
IC 506	129
IC 507	129
IC 508	127
IC 509	128
IC 510	123

SYMBOL NO.	INDEX NO.
IC 511	125
IC 512	124
IC 513	121
IC 514	126

LED

SYMBOL NO.	INDEX NO.
LED 1	119

Q

SYMBOL NO.	INDEX NO.
Q 501	120
Q 502	120
Q 503	116
Q 504	116
Q 505	116
Q 506	120
Q 507	120
Q 508	120

RESISTOR

SYMBOL NO.	INDEX NO.
R 501	133
R 502	134
R 503	134
R 504	134
R 505	136
R 506	134
R 507	136
R 508	134
R 509	134
R 510	135
R 511	136
R 512	134
R 513	134
R 514	134
R 515	134
R 516	134
R 517	134
R 518	134
R 519	134
R 520	134
R 521	135
R 522	134
R 523	135
R 524	134
R 525	135
R 526	134

RN

SYMBOL NO.	INDEX NO.
RN 501	130
RN 502	131
RN 503	131
RN 504	130
RN 505	130
RN 506	130
RN 507	130
RN 508	131
RN 509	131
RN 510	130
RN 511	130
RN 512	131
RN 513	131
RN 514	130
RN 515	130
RN 516	131
RN 517	131
RN 518	130
RN 519	130
RN 520	131
RN 521	131
RN 522	130
RN 523	132
RN 524	132
RN 525	130
RN 526	130
RN 527	130
RN 528	130
RN 529	130
RN 530	131
RN 531	131

TEST POINT

SYMBOL NO.	INDEX NO.
TP 516	101

ZD

SYMBOL NO.	INDEX NO.
ZD 501	118
ZD 502	118

75.IO BOARD (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A294 5300	IO Board	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	1100 1474	Test Pin	
102	1102 5303	Connector - 4P	
103	1102 5304	Connector - 5P	
104	1102 5327	Connector - 8P	
105	1102 6299	Connector - 6P	
106	1102 6303	Connector - 10P	
107	1102 6304	Connector - 11P	
108	1102 6306	Connector - 13P	
109	1102 6308	Connector - 15P	
110	1102 6394	Connector - 12P	
111	1102 6396	Connector - 1P	
112	1102 6399	Connector - 22P	
113	1102 6400	Connector - 24P	
114	1102 6403	Connector - 30P	
115	1102 6592	Connector - 8P	
116	1400 0555	Transistor - DTC143EK	
117	1402 1142	Diode Array - DAN217	
118	1402 1378	Diode - PTZ12A	
119	1403 0894	LED SML-010LT	
120	1407 1535	IC - TD62308AP	
121	1407 2187	TTLIC - SN74LS07NS	
122	1407 3168	IC - TC74HC251AF	
123	1407 3173	Driver - 16bit - M66311FP	
124	1407 3245	IC - CMOS - TC74HC32AF	
125	1407 3257	CMOSIC - TC74HC14AF	
126	1407 3305	IC - TC74HC157AF	
127	1407 4687	IC - TA8083F	
128	1407 5002	IC - M66310FP	
129	1408 0826	IC - TA8428K	
130	1601 7751	Resistor - 4.7KΩ ±5%	
131	1601 7752	Resistor Array - 10K Ω ±5%	
132	1601 7791	Resistor Array - 1K Ω ±5%	
133	1611 8751	Resistor - 750 Ω ±5% 1/4W	
134	1630 3102	Resistor - 1KΩ 1/10W ±5%	
135	1630 3103	Resistor - 10KΩ 1/10W ±5%	

Index No.	Part No.	Description	Q'ty Per Assembly
136	1630 3472	Resistor - 4.7KΩ 1/10W ±5%	
137	1640 5470	Capacitor - 47µF±20% 50V	
138	1660 3471	Capacitor - 470pF 50V	
139	1660 5102	Capacitor - 1000pF ±10% 50V	
140	1660 7103	Capacitor - 10000pF 50V	
141	1660 9104	C - 0.1µF25V	

Index No.	Part No.	Description	Q'ty Per Assembly

76.ADF MAIN CONTROL BOARD (A294)

CAPACITOR

SYMBOL NO.	INDEX NO.
C 100	188
C 101	188
C 102	188
C 103	177
C 104	156
C 105	188
C 106	188
C 107	188
C 108	188
C 109	188

SYMBOL NO.	INDEX NO.
C 110	177
C 111	188
C 112	188
C 113	182
C 114	188
C 115	190
C 116	188
C 117	181
C 118	188
C 119	188

SYMBOL NO.	INDEX NO.
C 120	188
C 121	188
C 122	188
C 123	188
C 124	188
C 125	188
C 126	190
C 127	188
C 128	188
C 129	181

SYMBOL NO.	INDEX NO.
C 130	188
C 131	177
C 132	188
C 133	177
C 134	181
C 135	180
C 136	180
C 137	177
C 138	179
C 139	178

SYMBOL NO.	INDEX NO.
C 140	188
C 141	154
C 142	184
C 143	184
C 144	188
C 145	188
C 146	188
C 147	188
C 148	188
C 149	188

SYMBOL NO.	INDEX NO.
C 150	190
C 151	188
C 152	190
C 153	183
C 154	188
C 155	184
C 156	188
C 157	188
C 158	188
C 159	185

SYMBOL NO.	INDEX NO.
C 160	188
C 161	190
C 162	188
C 163	188
C 164	188
C 165	155
C 166	188
C 167	155
C 168	186
C 169	188

CAPACITOR

SYMBOL NO.	INDEX NO.
C 170	188
C 171	188
C 172	189
C 173	188
C 174	186
C 175	186
C 176	184
C 177	190
C 178	190
C 179	188

SYMBOL NO.	INDEX NO.
C 180	190
C 181	188
C 182	188
C 183	188
C 184	188
C 185	188
C 186	189
C 187	187
C 188	187
C 189	189

SYMBOL NO.	INDEX NO.
C 190	188
C 191	188
C 192	188
C 193	190
C 194	188
C 195	188
C 196	188
C 197	184
C 198	188
C 199	188

SYMBOL NO.	INDEX NO.
C 200	188

CONNECTOR

SYMBOL NO.	INDEX NO.
CN 100	114
CN 101	115
CN 102	113
CN 103	111
CN 104	109
CN 105	110
CN 106	112
CN 107	108
CN 108	102
CN 109	107

SYMBOL NO.	INDEX NO.
CN 110	106
CN 111	105
CN 112	103
CN 113	103
CN 114	104

SYMBOL NO.	INDEX NO.
D 100	129
D 101	129
D 102	129
D 103	129
D 104	127

76.ADF MAIN CONTROL BOARD (A294)

DIP SWITCH

SYMBOL NO.	INDEX NO.
DPS 100	120

FUSE

SYMBOL NO.	INDEX NO.
FU 100	119
(clip)	116
FU 101	118
(clip)	116

IC

SYMBOL NO.	INDEX NO.
IC 100	135
IC 101	136
IC 102	142
IC 103	141
IC 104	148
IC 105	145
IC 106	132
IC 107	138
IC 108	143
IC 109	131

SYMBOL NO.	INDEX NO.
IC 110	135
IC 111	147
IC 112	133
IC 113	135
IC 114	138
IC 115	139
IC 116	140
IC 117	137
IC 118	2

SYMBOL NO.	INDEX NO.
IC 119	1
(Socket)	117
IC 120	134
IC 121	124
(Fin)	191
IC 122	2
IC 123	144
(Fin)	192
IC 124	146
IC 125	136

SYMBOL NO.	INDEX NO.
IC 126	134

LED

SYMBOL NO.	INDEX NO.
LED 100	130
LED 101	130
LED 102	130

Q

SYMBOL NO.	INDEX NO.
Q 100	125
Q 101	126
(Fin)	192
Q 102	123
Q 103	123
Q 104	122
Q 105	121
Q 106	121
Q 107	122
Q 108	122

SYMBOL NO.	INDEX NO.
Q 109	122
Q 110	122
Q 111	121
Q 112	122
Q 113	121
Q 114	122
Q 115	121

RESISTOR

SYMBOL NO.	INDEX NO.
R 100	168
R 101	150
R 102	150
R 103	151
R 104	152
R 105	151
R 106	171
R 107	171
R 108	171
R 109	171

SYMBOL NO.	INDEX NO.
R 110	169
R 111	164
R 112	164
R 113	164
R 114	164
R 115	171
R 116	164
R 117	164
R 118	164
R 119	164

SYMBOL NO.	INDEX NO.
R 120	160
R 121	171
R 122	164
R 123	160
R 124	164
R 125	171
R 126	159
R 127	176
R 128	160
R 129	165

SYMBOL NO.	INDEX NO.
R 130	164
R 131	160
R 132	176
R 133	160
R 134	169
R 135	160
R 136	174
R 137	169
R 138	171
R 139	171

SYMBOL NO.	INDEX NO.
R 140	160
R 141	160
R 142	160
R 143	160
R 144	164
R 145	160
R 146	160
R 147	171
R 148	160
R 149	160

76.ADF MAIN CONTROL BOARD (A294)

RESISTOR

SYMBOL NO.	INDEX NO.
R 150	164
R 151	171
R 152	171
R 153	164
R 154	165
R 155	171
R 156	157
R 157	164
R 158	171
R 159	160

SYMBOL NO.	INDEX NO.
R 160	160
R 161	160
R 162	160
R 163	171
R 164	171
R 165	164
R 166	164
R 167	162
R 168	171
R 169	172

SYMBOL NO.	INDEX NO.
R 170	173
R 171	160
R 172	160
R 173	160
R 174	172
R 175	160
R 176	160
R 177	172
R 178	166
R 179	171

SYMBOL NO.	INDEX NO.
R 180	175
R 181	161
R 182	161
R 183	164
R 184	164
R 185	160
R 186	164
R 187	164
R 188	160
R 189	160

SYMBOL NO.	INDEX NO.
R 190	164
R 191	160
R 192	160
R 193	160
R 194	160
R 195	172
R 196	160
R 197	172
R 198	160
R 199	172

SYMBOL NO.	INDEX NO.
R 200	160
R 201	172
R 202	172
R 203	172
R 204	160
R 205	160
R 206	160
R 207	172
R 208	160
R 209	172

SYMBOL NO.	INDEX NO.
R 210	160
R 211	172
R 212	172
R 213	160
R 214	160
R 215	172
R 216	172
R 217	160
R 218	172
R 219	172

RESISTOR

SYMBOL NO.	INDEX NO.
R 220	160
R 221	172
R 222	160
R 223	172
R 224	160
R 225	160
R 226	160
R 227	161
R 228	161
R 229	173

SYMBOL NO.	INDEX NO.
R 230	160
R 231	173
R 232	160
R 233	160
R 234	172
R 235	158
R 236	163
R 237	172
R 238	173
R 239	170

SYMBOL NO.	INDEX NO.
R 240	172
R 241	172
R 242	172
R 243	172
R 244	172
R 245	172
R 246	172
R 247	160
R 248	172
R 249	160

SYMBOL NO.	INDEX NO.
R 250	167
R 251	172
R 252	160
R 253	160
R 254	160
R 255	163
R 256	160
R 257	158
R 258	158
R 259	167

SYMBOL NO.	INDEX NO.
R 260	160
R 261	158
R 262	160
R 263	167
R 264	169
R 265	171
R 266	158
R 267	158
R 268	158
R 269	163

SYMBOL NO.	INDEX NO.
R 270	163
R 271	163
R 272	163
R 273	171
R 274	167
R 275	160
R 276	----
R 277	158
R 278	158
R 279	167

SYMBOL NO.	INDEX NO.
R 280	167
R 281	160
R 282	171
R 283	164
R 284	171
R 285	164
R 286	171
R 287	169
R 288	171
R 289	164

RESISTOR

SYMBOL NO.	INDEX NO.
R 290	168
R 291	168
R 292	159
R 293	159
R 294	159
R 295	159
R 296	159
R 297	159
R 298	172
R 299	160

TEST POINT

SYMBOL NO.	INDEX NO.
TP 100	101
TP 101	101
TP 102	101
TP 103	101
TP 104	101

VR

SYMBOL NO.	INDEX NO.
VR 100	153
VR 101	153

XTAL

SYMBOL NO.	INDEX NO.
XTAL	149

ZD

SYMBOL NO.	INDEX NO.
ZD 100	128

76.ADF MAIN CONTROL BOARD (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
*	B301 5500	ADF Main Control Board	1
1	B301 5562	IC - UVEPROM 27C 1M X8 120NS	1
2	B301 5700	IC - HTS7420X	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	1101 0328	Connector Pin Contact	
102	1102 0913	Connector - 9P	
103	1102 4201	Connector - 2P	
104	1102 4202	Connector - 3P	
105	1102 4203	CT Header - 4P	
106	1102 4205	CT Header - 6p	
107	1102 4206	Connector - 7P	
108	1102 4207	Connector - 8P	
109	1102 4208	Connector - 9P	
110	1102 4211	CT Header - 12P	
111	1102 4212	CT Header - 15P	
112	1102 4623	CT Connector - 6p	
113	1102 4629	Connector - 12P	
114	1102 6301	Connector - 8P	
115	1102 6302	Connector - 9P	
116	1104 0351	Fuse Holder	
117	1104 0589	Dip Socket - 32p	
118	1107 0751	Fuse - 4A 250V	
119	1107 0752	Fuse - 5A 250V	
120	1204 2368	Dip Switch - Dss804	
121	1400 0398	Transistor - 2SC2412K	
122	1400 0663	Transistor - 2SA1037AK	
123	1400 0763	Transistor - 2SD2025	
124	1401 0919	Mosfet Array - 4am14	
125	1401 0964	FET 2SJ172	
126	1401 1066	FET 2SJ176	
127	1402 0780	Diode - 200V - 1A - 11ES2	
128	1402 1353	Diode - HZ12BP	
129	1402 1492	14021492ERA32-01	
130	1403 0416	LED - Red - TLR123	
131	1407 1596	TTLIC - SN74LS14NS	
132	1407 2187	TTLIC - SN74LS07NS	
133	1407 3257	Cmosic - Tc74hc14af	
134	1407 3283	IC - TC74HC373AF	
135	1407 3287	IC - TC74HC393AF	

Index No.	Part No.	Description	Q'ty Per Assembly
136	1407 3290	IC - TC74HC02AF	
137	1407 3395	Cmosic - Tc74hc541af	
138	1407 4316	IC - TD52308BF	
139	1407 4724	Cpu Hd6413003tf-16	
140	1407 4980	EEPROM BR93LC56FV	
141	1408 0397	Comparator - NJM2901M	
142	1408 0599	IC - M51971EP	
143	1408 0611	IC - 3771	
144	1408 1007	Regurator - Upc7812ahf	
145	1408 1050	IC - STK6712BMK4	
146	1408 1287	IC - SI-8501L	
147	1408 1294	VR AD8402AR100	
148	1408 1387	VR AD8402AR50	
149	1503 0865	Oscillator - 9.8304MHZ	
150	1600 1209	Resistor - 220Ω 1W ±5%	
151	1600 1683	Resistor - 0.22 Ω ±5% 2W	
152	1600 1856	Resistor - 12 Ω ±10% 5W	
153	1601 8148	Variable Resistor - 20K Ω 0.5W	
154	1604 4448	Capacitor - UPJ1A561MPH	
155	1605 0797	Capacitor - 16pF ±5% 50V	
156	1606 1178	Capacitor - 0.01µF50V	
157	1630 3100	Resistor - 10 Ω ±5% 1/10W	
158	1630 3101	Resistor - 100Ω - 1/10W	
159	1630 3102	Resistor - 1KΩ 1/10W ±5%	
160	1630 3103	Resistor - 10KΩ 1/10W ±5%	
161	1630 3105	Resistor - 1M Ω ±5% 1/10W	
162	1630 3161	Registor - 160Ω 1/10w ±5%	
163	1630 3200	Resistor - 20 Ω ±5% 1/10W	
164	1630 3203	Resistor - 20 Ω ±5% 1/10W	
165	1630 3222	Resistor - 2.2KΩ 1/10W ±5%	
166	1630 3223	Resistor - 22kΩ - 1/10W	
167	1630 3273	Resistor - 27kΩ - 1/10W	
168	1630 3302	Resistor - 3kΩ - 1/10W	
169	1630 3391	Resistor - 390Ω 1/10W ±5%	
170	1630 3392	Resistor - 3.9kΩ - 1/10W	

Index No.	Part No.	Description	Q'ty Per Assembly
171	1630 3472	Resistor - 4.7KΩ 1/10W ±5%	
172	1630 3560	Resistor - 56Ω ±5% 1/10W	
173	1630 3562	Resistor - 5.6K Ω +5% 1/10W	
174	1630 3682	Resistor - 6.8kΩ - 1/10W	
175	1630 3753	Resistor - 75kΩ - 1/10W	
176	1633 1602	Resistor - 16KΩ ±1% 1/4W	
177	1640 5101	Capacitor - 100µF±20% 50V	
178	1640 5102	Capacitor - 1000µF±20% 50V	
179	1640 5220	Capacitor - 22µF±20% 50V	
180	1640 5471	Capacitor - 470 µF±20% 50V	
181	1643 5339	Capacitor - 3.3µF±20% 50V	
182	1643 5478	Capacitor - 0.47µF±20% 50V	
183	1660 2101	Capacitor - 100pF - ±10% - 50V	
184	1660 2221	Capacitor - 220pF +80-20% 50V	
185	1660 2471	Capacitor - 470pF - ±5% - 50V	
186	1660 4102	Capacitor - 1000pF ±10% 50V	
187	1660 4222	Capacitor - 2200pF - ±10% - 50V	
188	1660 6103	Capacitor - 10000pF - +80%-20%, 50V	
189	1660 6223	Capacitor 22000pF +80 -20% 50V	
190	1660 7104	Capacitor - 100000pF 50V	
191	5936 5221	HEAT SINK	

77.DECAL AND DOCUMENT (A294)

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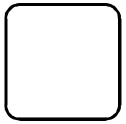

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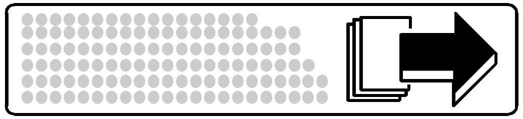

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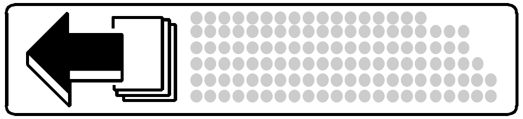

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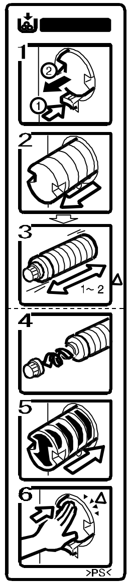
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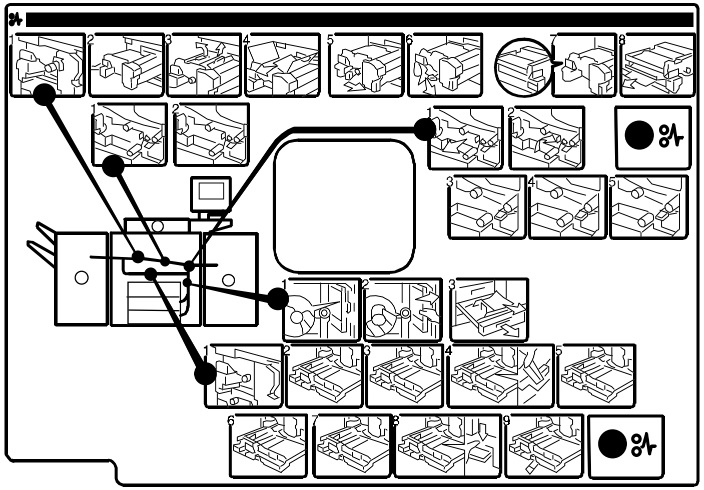
4
5
6
>PS<

5

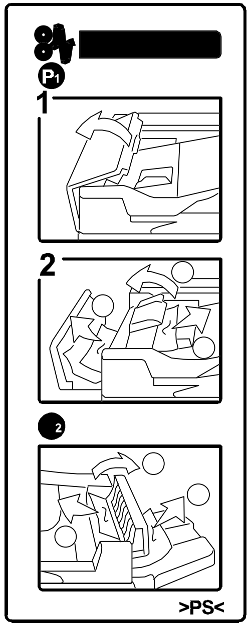


6

On
Main Power

7

8



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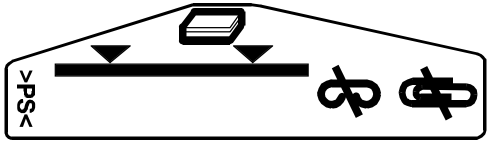

77.DECAL AND DOCUMENT (A294)

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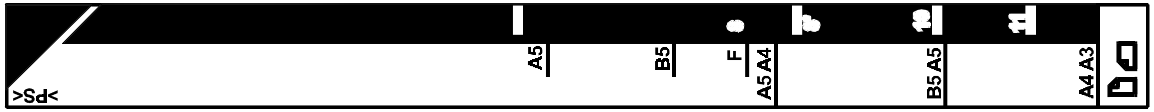
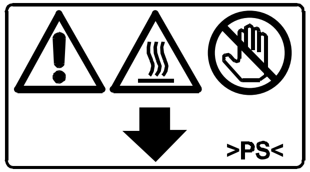

A5
B5
F
A5 A4
B5 A5
A4 A3

11



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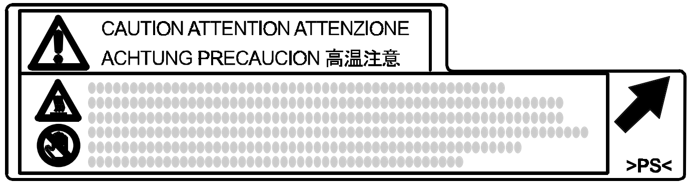
CAUTION ATTENTION ATTENZIONE
ACHTUNG PRECAUCION 高温注意
>PS<

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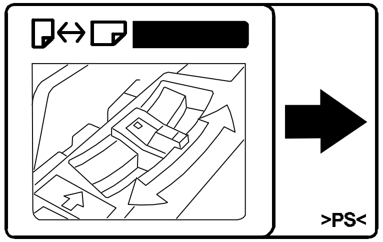

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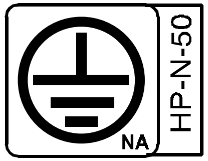

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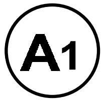

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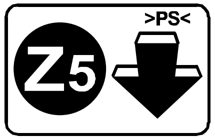

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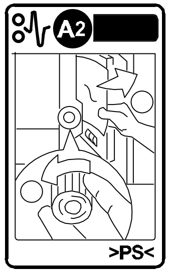

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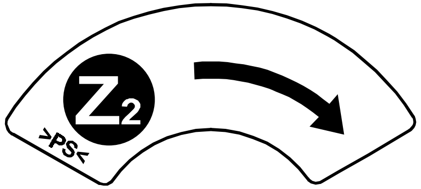

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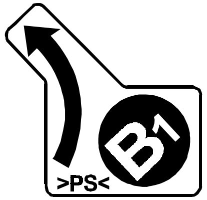
21

77.DECAL AND DOCUMENT (A294)

22



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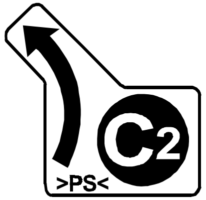

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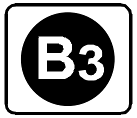

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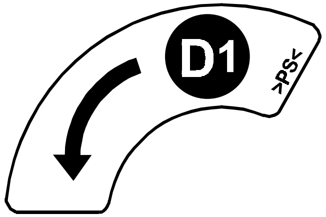

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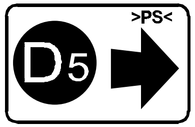

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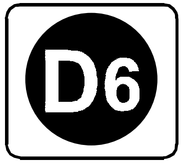

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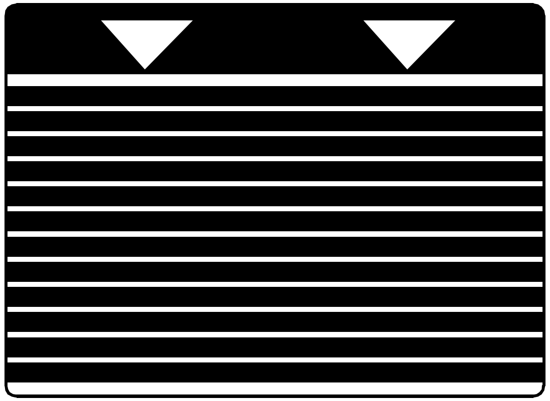

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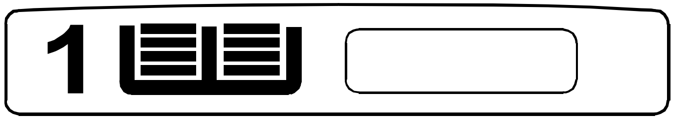

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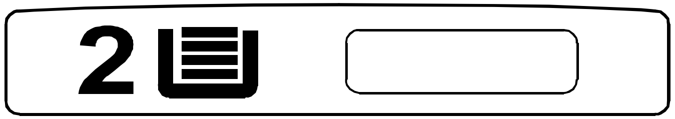

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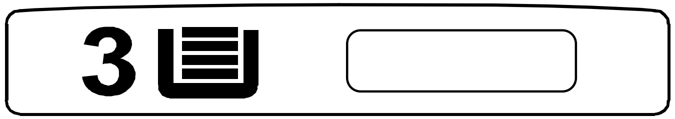
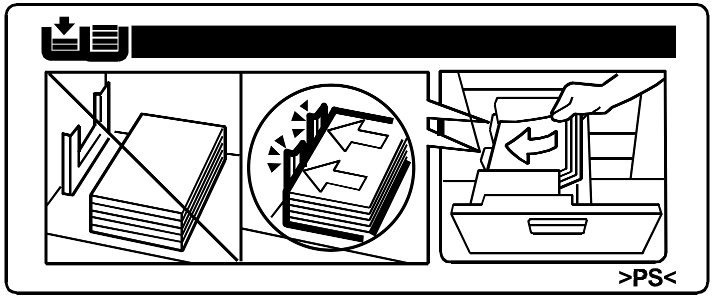


77.DECAL AND DOCUMENT (A294)

32



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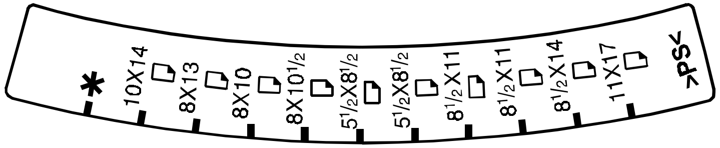
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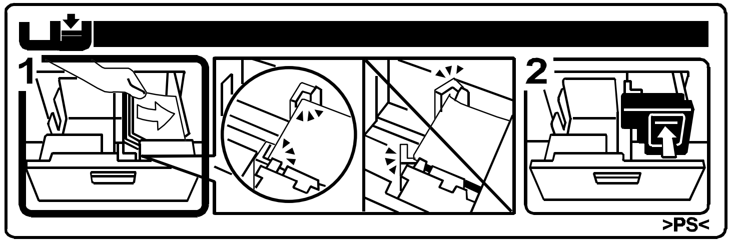
10X14
8X13
8X10
8X10½
5½X8½
5½X8½
8½X11
8½X11
8½X14
11X17
>PS<

33



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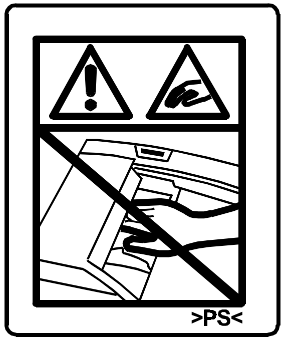

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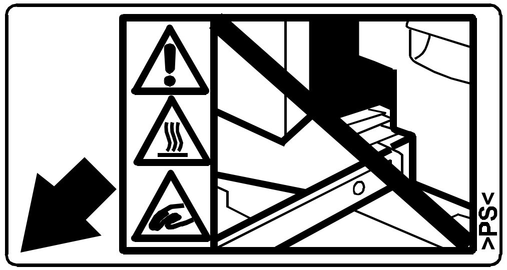

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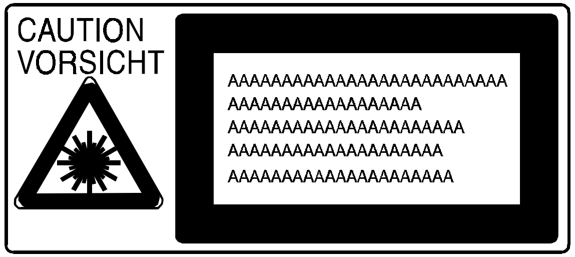
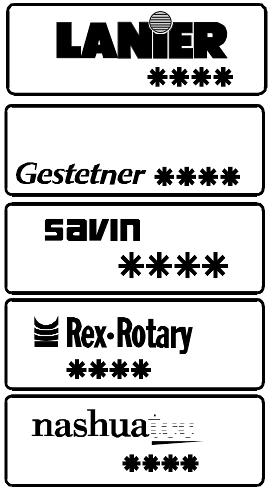
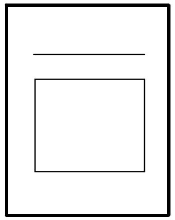

CAUTION
VORSICHT
AAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAA

77.DECAL AND DOCUMENT (A294)

38


LANIER ****
Gestetner ****
savin ****
Rex-Rotary ****
nashua ****

39



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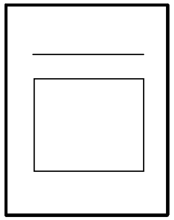

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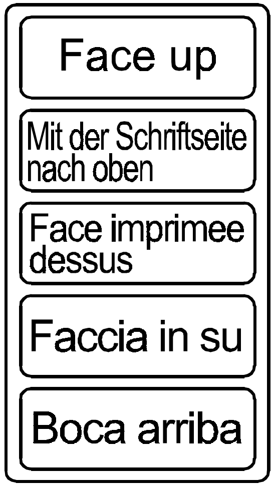
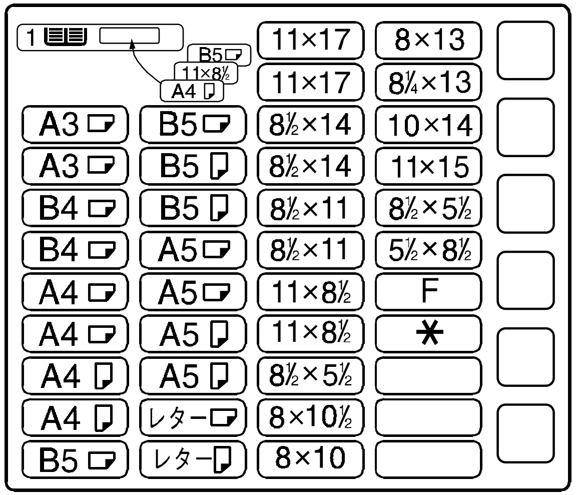

Face up
Mit der Schriftseite nach oben
Face imprimee dessus
Faccia in su
Boca arriba

42

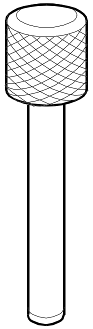

1
B5
11×8½
A4
11×17
11×17
8×13
8¼×13
A3
A3
B4
B4
A4
A4
A4
A4
B5
B5
B5
B5
A5
A5
A5
A5
レター
レター
8½×14
8½×14
8½×11
8½×11
11×8½
11×8½
8½×5½
8×10½
8×10
10×14
11×15
8½×5½
5½×8½
F
*

77.DECAL AND DOCUMENT (A294)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A029 2984	Decal - Grip	1
2	A096 6677	Decal - Right Paper Set	1
3	A096 6678	Decal - Left Paper Set	1
4	A294 1272	Decal - Toner Bank	1
5	A294 1300	Decal - Misfeed Removal	1
6	A294 1305	Decal - Main Switch - English (USA)	1
6	A294 1306	Decal - Main Switch - Symbol (EU)	1
7	A294 1378	Decal - Total Counter	1
8	A806 4311	Decal - Misfeed Removal	1
9	A806 4321	Decal - Original Stack Hight	1
10	A806 4331	Decal - Original Size	1
11	AA00 0207	High Temperature Decal - Small	1
12	AA00 0208	High Temperature Decal - Large	1
13	AA00 0213	Decal - Universal Tray	1
14	AA00 0540	Decal - Misfeed Removal	1
15	AA00 1190	Decal - Ground	1
16	AA00 1213	Decal - B2	1
17	AA00 1326	Decal - A1	1
18	AA00 1407	Guide Lever Decal	1
19	AA00 1408	Duplex Knob Decal	1
20	AA00 1409	Decal - Z4	1
21	AA00 1410	Decal - Paper Feed B4	1
22	AA00 1411	Decal - Paper Feed B1	1
23	AA00 1412	Decal - Paper Feed C2	1
24	AA00 1413	Decal - Paper Feed B3	1
25	AA00 1414	Decal - D1	1
26	AA00 1416	Decal - D5	1
27	AA00 1417	Decal - D6	1
28	AA00 2010	Decal - Paper Level	2
29	AA00 2237	Decal - Paper Tray No1	1
30	AA00 2238	Decal - Cover No.2	1
31	AA00 2239	Decal - Cover No.3	1
32	AA00 2244	Decal - Paper Set - Left	1
33	AA00 2245	Decal - Paper Set - Right	1
34	AA00 2246	Decal - Caution	1
35	AA00 2251	Paper Size Decal - LT	1
35	AA00 2252	Paper Size Decal - A4	1
36	B301 4351	Caution Decal	1
37	G029 1982	Decal - LD	2
38	A294 6930	Model Name Plate - SVN	1
38	A294 6931	Model Name Plate - GES	1
38	A294 6932	Model Name Plate - NSA	1
38	A294 6933	Model Name Plate - REX	1
38	A294 6934	Model Name Plate - LAN	1
39	A294 7207	Copier Operating Instructions LT (RIC)	1
39	A294 7260	Copier Operating Instructions Eng A3 (INF)	1
39	A294 7290	Copier Operating Instructions Eng A3 (NRG)	1
39	A294 7297	Copier Operating Instructions Eng LT (SVN)	1
39	A294 7237	Copier Operating Instructions Eng LT (LAN)	1
40	A294 8607	System Operating Instructions - LT (RIC)	1
40	A294 8660	System Operating Instructions Eng A3 (INF)	1
40	A294 8690	System Operating Instructions Eng A3 (NRG)	1
40	A294 8697	System Operating Instructions Eng LT (SVN)	1
40	A294 8637	System Operating Instructions Eng LT (LAN)	1
41	A610 6051	Decal - Document Set	1
42	AA00 2096	Decal - Size Indication	1

78.SPECIAL TOOLS (A294)

1



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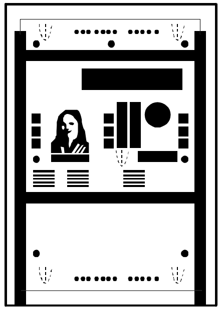

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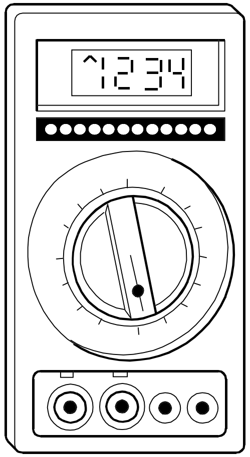

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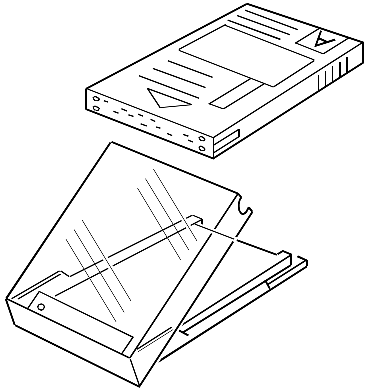

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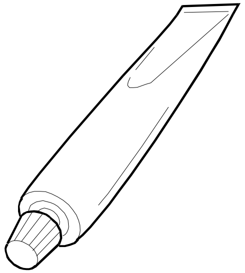

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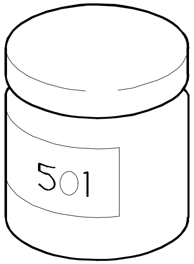

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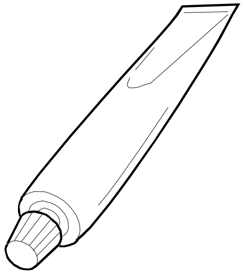

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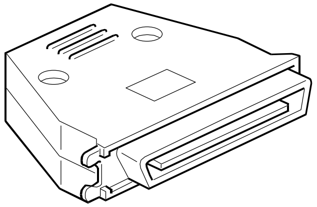

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